



NAVAL MEDICAL RESEARCH UNIT DAYTON

**EVALUATION OF 10 JET FUELS IN THE *SALMONELLA-
ESCHERICHIA COLI* MUTAGENICITY ASSAY**

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NAMRU-D REPORT NUMBER 16-101



Reviewed and Approved
07 SEP 2016



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This work was funded by work unit number 60769 and the Defense Logistics Agency (provided to Dr. David R. Mattie, USAF).

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ABSTRACT

The focus of this study was to evaluate the toxicity of ten jet fuels of interest to the United States Department of Defense. Specifically, this study aimed to determine the potential of the jet fuels to induce DNA damage that may lead to genetic mutations. All of the jet fuels tested were considered to be negative for mutagenicity in the bacterial reverse mutation assay using *Salmonella* and *E. coli* strains. Based on the parameters used in this *in vitro* study, Citgo JP8 (POSF 4658), Valero 25% Aromatic JP8 (POSF 8457), KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327), ARA ReadJet (POSF 10328), Amyris Farnesane (POSF 10329), Virent HDO-SK (POSF 10330), TS-1 (Specification number 10227-86), Gevo 7695 with JP8 additives (POSF 7699), Gevo 10262 with JP8 additives (POSF 10263), and Swedish Biofuel 7633 with JP8 additives (POSF 8452) are considered to be nonmutagenic.

PURPOSE AND OBJECTIVE OF STUDY

The objective of this study was to evaluate the capability of ten individual jet fuels to induce DNA damage that may lead to genetic mutations. This study utilizes bacterial test systems, specifically four strains of genetically altered *Salmonella typhimurium* and one strain of genetically altered *Escherichia coli*, to assess different types of mutations. This study also takes into account the potential genotoxicity associated with compounds or intermediates that may result from metabolism of the parent compound(s). This study was conducted in accordance with the OECD Guideline for Testing of Chemicals 471 (Bacterial Reverse Mutation Test) and the U.S. Environmental Protection Agency (EPA) Health Effects Test Guidelines OPPTS 870.5100 (Bacterial Reverse Mutation Test).

STUDY DESIGN

Premise of the Bacterial Reverse Mutation Test. This study was designed to be in line with the OECD Guideline for Testing of Chemicals 471 (Bacterial Reverse Mutation Test) and the U.S. EPA Health Effects Test Guidelines OPPTS 870.5100 (Bacterial Reverse Mutation Test). The strains utilized for this assay are genetically altered (i.e., mutated), leaving them unable to synthesize an essential amino acid (histidine for the *Salmonella typhimurium* strains and tryptophan for the *Escherichia coli* strain). When histidine/tryptophan is not supplied to the bacteria, they are unable to grow and form colonies. However,

new mutations that occur within “hot spots” of these bacterial strains can result in the reversion of the pre-existing mutations, reinstating the ability of the bacteria to synthesize their own histidine/tryptophan. Upon this reversion, the bacteria are then able to grow and form colonies in the absence of externally supplied histidine/tryptophan. Therefore, should genotoxic or mutagenic potential of the test substance exist, exposure of the test system (i.e., bacterial strains) to the test substance (i.e., jet fuel) will result in a reverse mutation, restoring bacterial growth and yielding an increased number of colonies for the affected strain.

This study employed the conventional approach of the plate incorporation method. The standard plate incorporation method involves combining the test substance and test system in a liquid agar matrix. This combined mixture is then added to an already solidified bottom agar. Exposures can take place in the absence or presence of a metabolic activation mix. This mixture allows for conversion of parent compound(s) to other intermediates or end-product compounds that may result from metabolism of the starting substance.

Dilutions and Dose Levels. All test substances were diluted in solvent immediately prior to use. The highest dose level was 5 µl test substance/plate, per the recommendation of OECD and U.S. EPA OPPTS Guidelines. This dose level was evaluated for ability to induce cytotoxicity (bacterial cell death) *Salmonella* TA-100. Five µl/plate was utilized as the high dose, except in cases where cytotoxicity was induced. Test substances were serially diluted in solvent to attain six dose levels, such that doses were 5, 2.5, 1.25, 0.625, 0.313, 0.156 µl/plate. Where cytotoxicity occurred, as evidenced by “pinpoint” colonies, the high dose was lowered appropriately with serial dilution to attain six dose levels.

Metabolic Activation. The test substances were tested in the absence of metabolic activation, and with 5% and 10% (v/v) S9 in metabolic activation mix. The S9 preparation was added to the test substance/system/agar mixture prior to delivery to the bottom agar.

Endpoints. The primary endpoint was the number of revertant colonies, as counted on the plates following incubation.

MATERIALS AND METHODS

A. Specialized Materials

1. Test Substances

All fuels were supplied by David R. Mattie, PhD, 711 HPW/RHDJ.

Citgo JP8 (POSF 4658) *

Valero 25% Aromatic JP8 (POSF 8457) *

KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) *

ARA ReadJet (POSF 10328) *

Amyris Farnesane (POSF 10329) *

Virent HDO-SK (POSF 10330) *

TS-1 (Specification number 10227-86)

Gevo 7695 with JP8 additives (POSF 7699)

Gevo 10262 with JP8 additives (POSF 10263)

Swedish Biofuel 7633 with JP8 additives (POSF 8452)

* Denotes DLA sponsored fuel.

2. Solvent

Dimethyl sulfoxide (DMSO)

Manufacturer: American Type Culture Collection (ATCC; Manassas, VA)

Lot numbers: 30001060, 60950707

3. Positive Controls

2-Nitrofluorene

Manufacturer: Sigma-Aldrich (St. Louis, MO)

Lot number: S43858V

2-Anthramine

Manufacturer: Pfaltz & Bauer (Waterbury, CT)

Lot number: 19352

Sodium Azide

Manufacturer: Sigma-Aldrich (St. Louis, MO)

Lot number: MKBP4386V

9-Aminoacridine

Manufacturer: Sigma-Aldrich (St. Louis, MO)

Lot number: BCBK1177V

4-Nitroquinoline N-oxide

Manufacturer: Sigma-Aldrich (St. Louis, MO)

Lot number: SLBG4397V

4. Test Systems

Salmonella strains are described in Maron and Ames, 1983.

Strain: *Salmonella typhimurium* TA-98 (*hisD3052, uvrB, rfa, pKM101*)

Source: Moltox (Boone, NC)

DNA Target: -C-G-C-G-C-G-C-G-

Reversion event: Frameshifts

Strain: *Salmonella typhimurium* TA-100 (*hisG46, uvrB, rfa, pKM101*)

Source: Moltox (Boone, NC)

DNA Target: -G-G-G-

Reversion event: Base-pair substitution

Strain: *Salmonella typhimurium* TA-1535 (*hisG46, uvrB, rfa*)

Source: American Type Culture Collection (ATCC; Manassas, VA)

DNA Target: -G-G-G-

Reversion event: Base-pair substitution

Strain: *Salmonella typhimurium* TA-1537 (*his3076, uvrB, rfa*)

Source: American Type Culture Collection (ATCC; Manassas, VA)

DNA Target: +1 frameshift (near -C-C-C- run)

Reversion event: Frameshifts

E. coli WP2 strain is described in Green and Muriel, 1976.

Strain: *Escherichia coli* WP2 (*trp, uvrA*)

Source: Moltox (Boone, NC)

DNA Target: A:T base pair

Reversion event: All possible transitions and transversions, small deletions

5. Metabolic Activation System

The metabolic activation system used was a cofactor supplemented post-mitochondrial fraction prepared from the livers of rodents treated with the enzyme-inducing agent Aroclor 1254 (S9; Moltox, Boone, NC; Lot number 3148).

B. Methods

1. Controls

Strain-specific positive and negative (solvent) controls, both with and without metabolic activation, were included in each assay, as well as an untreated control consisting of bacteria alone. Concentrations that demonstrate the effectiveness of the assay were selected. DMSO was used as

the negative (solvent) control for each trial. The S9 metabolic system diluted 5 and 10% in sterility plates were also evaluated, as was the sterility of each fuel.

2. Preparation of Bacteria

To prepare bacterial cultures for use in the assay, 50 ml of nutrient broth was inoculated and allowed to grow for approximately 15 to 18 hours at 37°C with constant agitation (125 rpm). Following 15 to 18 h of growth, cultures were removed from the shaker incubator and placed on ice. For *Salmonella* strains, minimal (bottom) agar plates containing Vogel-Bonner Medium E, dextrose, and trace amounts of histidine/biotin solution (to allow for limited cell division) were used to grow the bacteria exposed to the test substance. For *E. coli*, minimal agar plates containing Vogel-Bonner Medium E and dextrose were used to grow the bacteria exposed to the test substance. Additionally for *E. coli*, trace amounts (0.05 mM) of tryptophan was added to the molten top agar overlay, again to allow for limited cell division.

3. Doses

Based on results from *Salmonella typhimurium* TA-100, Citgo JP8 (POSF 4658), Valero 25% Aromatic JP8 (POSF 8457), ARA ReadJet (POSF 10328), Amyris Farnesane (POSF 10329), TS-1 (Specification number 10227-86), Gevo 7695 with JP8 additives (POSF 7699), Gevo 10262 with JP8 additives (POSF 10263), and Swedish Biofuel 7633 with JP8 additives (POSF 8452), were used at 5, 2.5, 1.25, 0.625, 0.313 and 0.156 µl fuel/plate. Due to evidence of toxicity, KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) and Virent HDO-SK (POSF 10330) were used at concentrations of 2.5, 1.25, 0.625, 0.313 µl, 0.156 and 0.078 µl fuel/plate. All fuels were prepared in appropriate volumes of DMSO immediately prior to use.

4. Experimental Procedure

Experiments and media/solution preparation followed standard procedures for the bacterial reverse mutation assay, as described in (Mortelmans and Zeiger, 2000). Briefly, for the plate incorporation method, without metabolic activation, 100 µl of the test substance (i.e., fuel diluted in DMSO to a total of 100 µl) and 100 µl of fresh bacterial culture were added to autoclaved overlay

agar (2.5 ml) in glass test tubes with metal closures. When S9 was added for metabolic activation, 500 µl of the metabolic activation mixture (containing either 5 or 10% S9) was added to the overlay agar in the glass test tube, with the bacteria and test substance. For *E. coli* only, 0.05 mM tryptophan was also added to the overlay agar. The entire contents of the tubes were mixed and poured over the surface of the minimal (bottom) agar plates. The overlay agar was allowed to solidify prior to inversion of the plates and incubation. Triplicate plating was used at each dose level. All plates were incubated at 37°C for 48 to 72 hours. Plates that were not counted immediately following the incubation period were stored at 4°C to halt any further bacterial growth until enumeration of colonies.

C. Data Collection and Archiving

The number of revertant colonies were counted and recorded for each plate by NAMRU-D personnel. Plates were randomized to avoid any potential bias associated with individuals. Hard copies of the raw data will be stored at NAMRU-D for at least 1 year, and digital/scanned copies of the raw data will be stored at NAMRU-D for at least a period of 3 years.

D. Statistical Methods

The mutant frequency was expressed as the quotient of the number of revertant colonies over the number of colonies in the solvent control. A mutagenic potential of the test substance was assumed if the mutant frequency was at least 2.0 or higher, with increases occurring in a dose-dependent manner.

All data were analyzed using SigmaPlot for Windows version 12.5.0.38 (2011). Means and standard deviation were calculated from the individual plate counts. Prior to analyses, SigmaPlot was used to run the Levene's test to check for equality of variances and the Shapiro-Wilk test to check for normality of data distribution. When data met the criterion for equal variance and normality, a one-way analysis of variance (ANOVA) was performed to assess differences between groups. If significant difference existed between groups, a Dunnett post-hoc analysis was performed to compare individual dose group means with the controls. When assumptions for equal

variance and normality failed, a Kruskal-Wallis ANOVA on ranks was performed. For all analyses, significance levels were set at $p < 0.05$.

E. Interpretation of Positive vs. Negative Result

The mutant frequency was expressed as the quotient of the number of revertant colonies over the number of colonies in the solvent control. Mutagenic potential of the test substance was assumed if the mutant frequency was 2.0 or higher (two-fold increase in number of revertant colonies). This minimum 2-fold increase is a widely used approach for categorizing mutagenic versus nonmutagenic substances. Many researchers set more strict guidelines and require a 3-fold increase in revertant colonies. Alternatively, non-statistical criteria qualify “positive” results by a reproducible, dose-dependent increase in the number of revertant colonies in one or more test strains. “Negative” results suggest a substance is nonmutagenic if no dose-dependent increase is observed (Mortelmans and Zeiger, 2000). Both of these approaches were used to analyze the data for this study.

RESULTS AND DISCUSSION

A. Preliminary Assessment of Toxicity (Range-Finding)

Primary assessments regarding the cytotoxicity of test substances are typically made using *Salmonella typhimurium* strain TA-100. As such, initial experiments were performed using this strain to determine if the maximum recommended dose of 5 $\mu\text{l}/\text{plate}$ was suitable for these test substances. These experiments demonstrated that 5 $\mu\text{l}/\text{plate}$ was an appropriate high dose for 8 of the 10 fuels: Citgo JP8 (POSF 4658), Valero 25% Aromatic JP8 (POSF 8457), ARA ReadJet (POSF 10328), Amyris Farnesane (POSF 10329), TS-1 (Specification number 10227-86), Gevo 7695 with JP8 additives (POSF 7699), Gevo 10262 with JP8 additives (POSF 10263), and Swedish Biofuel 7633 with JP8 additives (POSF 8452). There were no observations of any significant precipitation, nor any evidence of cytotoxicity at any of the concentrations tested for these eight jet fuels. Given that 5 μl fuel/plate was deemed suitable as a maximum dose, the additional doses for further testing were 5, 2.5, 1.25, 0.625, 0.313, and 0.078 μl fuel/ plate.

Two of the jet fuels tested, KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) and Virent HDO-SK (POSF 10330), demonstrated cytotoxic characteristics at the 5 µl/plate dose, as

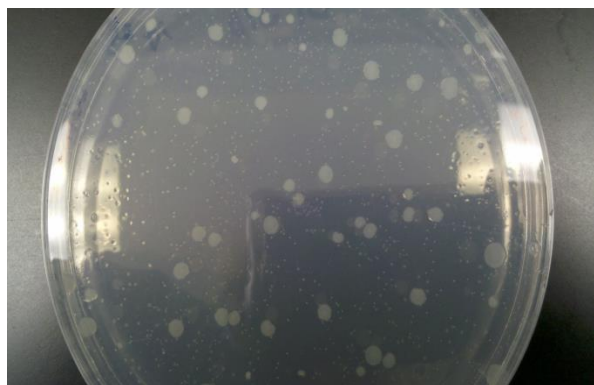


Figure 1: “Pinpoint” colonies of *Salmonella* TA-100 induced by exposure to 5 µl/plate KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327). Larger colonies are of standard size for revertant TA-100 colonies; the smaller colonies are abnormal and are indicative of toxicity at this dose.

evidenced by the presence of hundreds of “pinpoint” colonies. These colonies were significantly smaller, approximately a tenth of the size or less, when compared to otherwise normal colonies (Figure 1).

Pinpoint colonies are considered a result of a “high level of toxicity”. This toxicity results in the early death of the many bacteria, eliminating the normal

background “lawn” and leaving more of the trace histidine available for surviving non-revertants. Ultimately, this allows non-revertants to undergo further cell division, yielding very small colonies, until trace histidine is fully exhausted (Mortelmans and Zeiger, 2000). Given the abundance of pinpoint colonies at the 5 µl fuel/plate dose, the doses were adjusted such that 2.5 µl fuel/plate would be used as the high dose for these two fuels, which greatly reduced the presence of pinpoint colonies. As such, the concentrations for KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) and Virent HDO-SK (POSF 10330) were 2.5, 1.25, 0.625, 0.313, 0.156 and 0.078 µl fuel/plate.

B. Mutagenicity Experiments

Mutagenicity experiments were conducted in absence and presence of metabolic activation (5 and 10% S9) with all five strains of bacteria across six fuel doses. Jet fuels were dissolved in DMSO immediately prior to use. The fuels readily went into solution in DMSO; however, a “hazy film” or “cloudiness” was observed when the fuels (in DMSO) were added to the agar overlay mixture. This was to be expected, as fuels typically do not readily go into a water-based solution. This cloudy haze was most apparent with the two highest doses and became less visible with less

concentrated doses. There were no observations noted concerning the formation of precipitates or the distinct layering into separate fuel/water phases that may have caused particular concern with regard to appropriate mixing/interaction.

Raw colony counts and mutant frequencies (shown as the ratio of fuel-treated to solvent control colonies) for each fuel are shown in Tables 1-50 (pages 15-64). Statistical analyses using ANOVA did reveal some statistically significant differences between certain fuels/doses in comparison to the solvent control; these values are shown in bold, where appropriate, in Tables 1-50. While some statistical significant differences did exist, they were not associated with a 2-fold or greater increase in revertant colonies or a dose-dependent increase in revertant colonies, as described in Section III. B.

Case in point, on numerous occasions, data sets (such as in Table 20, page 34) show only one or two statistically significant dose(s). While statistically significant, the data do not correlate to an increase in mutant frequency and the significant data point(s) are with regard to intermediate dose levels only (0.313 µl/plate in the case of Table 20, page 34), and are therefore not suggestive of a dose-response. In these cases, these statistically significant differences are neither of mutagenic or biological relevance.

Further, Table 2 (page 16) displays the results for *Salmonella* TA-100 following exposure to Citgo JP8 (POSF 4658). There was a statistically significant difference in the mean plate count when the test strain was exposed to 0.313 (or greater) µl Citgo JP8 /plate. While significant, there was largely no change in the mutant frequency, and the mean number of colonies decreased with increase in dose. This opposite dose-response effect may be more suggestive of a cytotoxic effect. Therefore, while statistically significant, these results are not considered to be an indication of a mutagenic response.

As described above, there was a cytotoxic effect associated with the 5 µl/plate dose for KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) and Virent HDO-SK (POSF 10330). This is not an abnormal effect given that complex mixtures, such as jet fuels, may contain specific

components at concentrations high enough to elicit a cytotoxic effect against bacteria. Whether this cytotoxic effect on prokaryotic cells would translate to a cytotoxic effect on eukaryotic cells cannot be determined from this study. Overall, while the raw colony counts and mutant frequencies fluctuate slightly within normal expectations, the criteria (as outlined in Section III. B) for classifying the 10 jet fuels used in this study as potential mutagens are not met.

CONCLUSIONS

All of the ten jet fuels tested were considered to be negative for mutagenicity in the bacterial reverse mutation assay using *Salmonella* and *E. coli* strains. KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327) and Virent HDO-SK (POSF 10330) were found to be cytotoxic to the bacteria at the maximum dose (5 µl/plate). Based on the parameters used in this *in vitro* study, Citgo JP8 (POSF 4658), Valero 25% Aromatic JP8 (POSF 8457), KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327), ARA ReadJet (POSF 10328), Amyris Farnesane (POSF 10329), Virent HDO-SK (POSF 10330), TS-1 (Specification number 10227-86), Gevo 7695 with JP8 additives (POSF 7699), Gevo 10262 with JP8 additives (POSF 10263), and Swedish Biofuel 7633 with JP8 additives (POSF 8452) are considered to be nonmutagenic.

ACKNOWLEDGEMENTS

The authors thank Mr. George P. Lemmer, Ms. Angela D. Hulgán and Mr. Shawn McInturf for their assistance in data collection and statistical analyses.

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Table 1: Individual and mean plate counts for *Salmonella* TA-98 exposed to Citgo JP8 (POSF 4658)

| Test compound without metabolic activation: 11/5/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | Citgo JP8 | 5.000 | 35.33 | 4.04 | 1.1 | 33 | 33 | 40 |
| | - | Citgo JP8 | 2.500 | 26.00 | 5.20 | 0.8 | 20 | 29 | 29 |
| | - | Citgo JP8 | 1250 | 30.67 | 8.39 | 1.0 | 21 | 35 | 36 |
| | - | Citgo JP8 | 0.625 | 34.00 | 1.00 | 1.1 | 35 | 34 | 33 |
| | - | Citgo JP8 | 0.313 | 42.00 | 5.29 | 1.3 | 48 | 38 | 40 |
| | - | Citgo JP8 | 0.156 | 36.33 | 4.62 | 1.1 | 39 | 39 | 31 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (5%) | Citgo JP8 | 5.000 | 35.67 | 16.62 | 0.8 | 18 | 38 | 51 |
| | + (5%) | Citgo JP8 | 2.500 | 44.67 | 8.50 | 1.0 | 45 | 36 | 53 |
| | + (5%) | Citgo JP8 | 1250 | 41.00 | 4.24 | 0.9 | 44 | 34 | 38 |
| | + (5%) | Citgo JP8 | 0.625 | 44.67 | 4.04 | 1.0 | 44 | 41 | 49 |
| | + (5%) | Citgo JP8 | 0.313 | 44.00 | 11.14 | 1.0 | 42 | 56 | 34 |
| | + (5%) | Citgo JP8 | 0.156 | 42.50 | 2.12 | 1.0 | 44 | 41 | NA |
| | | | | | | | | | |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (10%) | Citgo JP8 | 5.000 | 43.33 | 2.52 | 0.9 | 46 | 43 | 41 |
| | + (10%) | Citgo JP8 | 2.500 | 50.00 | 3.61 | 1.0 | 53 | 51 | 46 |
| | + (10%) | Citgo JP8 | 1250 | 43.67 | 7.57 | 0.9 | 47 | 35 | 49 |
| | + (10%) | Citgo JP8 | 0.625 | 44.00 | 4.58 | 0.9 | 49 | 40 | 43 |
| | + (10%) | Citgo JP8 | 0.313 | 43.00 | 4.58 | 0.9 | 39 | 48 | 42 |
| | + (10%) | Citgo JP8 | 0.156 | 47.67 | 8.08 | 1.0 | 55 | 39 | 49 |
| | | | | | | | | | |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 230.33 | 27.57 | 7.3 | 228 | 204 | 259 |
| | - | Untreated | | 34.67 | 9.07 | 1.1 | 43 | 36 | 25 |
| | - | Solvent | | 31.67 | 153 | | 30 | 33 | 32 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (5%) | 2-Anthramine | 0.5 | 248.33 | 19.14 | 5.6 | 264 | 227 | 254 |
| | + (5%) | Untreated | | 48.00 | 12.00 | 1.1 | 36 | 48 | 60 |
| | + (5%) | Solvent | | 44.67 | 6.35 | | 41 | 41 | 52 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (10%) | 2-Anthramine | 0.5 | 136.33 | 11.24 | 2.8 | 139 | 124 | 146 |
| | + (10%) | Untreated | | 50.00 | 2.00 | 1.0 | 48 | 52 | 50 |
| | + (10%) | Solvent | | 48.67 | 2.08 | | 51 | 48 | 47 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 2: Individual and mean plate counts for *Salmonella* TA-100 exposed to Citgo JP8 (POSF 4658)

| Test compound without metabolic activation: 10/18/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Citgo JP8 | 5.000 | 103.00 | 5.00 | 0.8 | 108 | 98 | 103 |
| | - | Citgo JP8 | 2.500 | 107.33 | 15.14 | 0.9 | 114 | 118 | 90 |
| | - | Citgo JP8 | 1.250 | 121.33 | 3.06 | 1.0 | 118 | 122 | 124 |
| | - | Citgo JP8 | 0.625 | 121.00 | 5.57 | 1.0 | 126 | 115 | 122 |
| | - | Citgo JP8 | 0.313 | 135.33 | 9.02 | 1.1 | 136 | 126 | 144 |
| | - | Citgo JP8 | 0.156 | 116.33 | 16.65 | 0.9 | 135 | 111 | 103 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | + (5%) | Citgo JP8 | 5.000 | 89.33 | 4.73 | 0.7 | 91 | 93 | 84 |
| | + (5%) | Citgo JP8 | 2.500 | 94.00 | 9.64 | 0.8 | 101 | 83 | 98 |
| | + (5%) | Citgo JP8 | 1.250 | 105.33 | 3.79 | 0.9 | 108 | 101 | 107 |
| | + (5%) | Citgo JP8 | 0.625 | 106.33 | 6.03 | 0.9 | 107 | 100 | 112 |
| | + (5%) | Citgo JP8 | 0.313 | 105.33 | 2.89 | 0.9 | 107 | 107 | 102 |
| | + (5%) | Citgo JP8 | 0.156 | 111.00 | 2.00 | 0.9 | 109 | 111 | 113 |
| | | | | | | | | | |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | + (10%) | Citgo JP8 | 5.000 | 98.33 | 16.20 | 0.8 | 88 | 90 | 117 |
| | + (10%) | Citgo JP8 | 2.500 | 114.67 | 11.72 | 0.9 | 110 | 106 | 128 |
| | + (10%) | Citgo JP8 | 1.250 | 129.67 | 12.10 | 1.0 | 134 | 116 | 139 |
| | + (10%) | Citgo JP8 | 0.625 | 120.67 | 11.59 | 1.0 | 113 | 115 | 134 |
| | + (10%) | Citgo JP8 | 0.313 | 118.33 | 3.21 | 0.9 | 117 | 116 | 122 |
| | + (10%) | Citgo JP8 | 0.156 | 105.33 | 9.87 | 0.8 | 110 | 112 | 94 |
| | | | | | | | | | |
| Positive control without metabolic activation: 10/18/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2236.00 | 86.53 | 18.0 | 2164 | 2212 | 2332 |
| | - | Untreated | | 121.67 | 3.06 | 1.0 | 121 | 119 | 125 |
| | - | Solvent | | 124.00 | 13.53 | | 123 | 111 | 138 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | + (5%) | 2-Anthramine | 0.5 | 357.00 | 38.97 | 3.0 | 392 | 364 | 315 |
| | + (5%) | Untreated | | 144.33 | 7.51 | 1.2 | 153 | 140 | 140 |
| | + (5%) | Solvent | | 119.67 | 3.06 | | 119 | 123 | 117 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | + (10%) | 2-Anthramine | 0.5 | 263.50 | 13.44 | 2.1 | 254 | 273 | NA |
| | + (10%) | Untreated | | 132.00 | 4.36 | 1.0 | 129 | 130 | 137 |
| | + (10%) | Solvent | | 127.00 | 2.65 | | 129 | 128 | 124 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 3: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Citgo JP8 (POSF 4658)

| Test compound without metabolic activation: 11/22/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Citgo JP8 | 5.000 | 8.00 | 3.61 | 0.8 | 7 | 5 | 12 |
| | - | Citgo JP8 | 2.500 | 5.67 | 1.53 | 0.5 | 7 | 4 | 6 |
| | - | Citgo JP8 | 1250 | 9.33 | 3.51 | 0.9 | 9 | 13 | 6 |
| | - | Citgo JP8 | 0.625 | 13.67 | 13.28 | 13 | 6 | 6 | 29 |
| | - | Citgo JP8 | 0.313 | 9.00 | 0.00 | 0.9 | 9 | 9 | 9 |
| | - | Citgo JP8 | 0.156 | 6.67 | 0.58 | 0.6 | 6 | 7 | 7 |
| Test compound with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Citgo JP8 | 5.000 | 10.33 | 4.04 | 11 | 11 | 6 | 14 |
| | +(5%) | Citgo JP8 | 2.500 | 8.50 | 2.12 | 0.9 | 10 | NA | 7 |
| | +(5%) | Citgo JP8 | 1250 | 13.50 | 4.95 | 15 | 10 | NA | 17 |
| | +(5%) | Citgo JP8 | 0.625 | 15.00 | 3.61 | 17 | 16 | 11 | 18 |
| | +(5%) | Citgo JP8 | 0.313 | 11.00 | 2.65 | 12 | 14 | 10 | 9 |
| | +(5%) | Citgo JP8 | 0.156 | 12.00 | 2.00 | 13 | 10 | 14 | 12 |
| Test compound with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Citgo JP8 | 5.000 | 11.33 | 1.53 | 13 | 10 | 13 | 11 |
| | +(10%) | Citgo JP8 | 2.500 | 13.00 | 3.46 | 14 | 11 | 17 | 11 |
| | +(10%) | Citgo JP8 | 1250 | 10.67 | 1.53 | 12 | 11 | 9 | 12 |
| | +(10%) | Citgo JP8 | 0.625 | 8.67 | 1.53 | 10 | 10 | 7 | 9 |
| | +(10%) | Citgo JP8 | 0.313 | 7.67 | 4.04 | 0.9 | 4 | 12 | 7 |
| | +(10%) | Citgo JP8 | 0.156 | 11.33 | 2.52 | 13 | 9 | 14 | 11 |
| Positive control without metabolic activation: 11/22/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 564.00 | 32.19 | 54.6 | 560 | 534 | 598 |
| | - | Untreated | | 14.33 | 5.13 | 14 | 13 | 20 | 10 |
| | - | Solvent | | 10.33 | 4.04 | | 14 | 11 | 6 |
| Positive control with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 35.67 | 1.53 | 4.0 | 37 | 36 | 34 |
| | +(5%) | Untreated | | 13.67 | 2.31 | 15 | 15 | 15 | 11 |
| | +(5%) | Solvent | | 9.00 | 2.65 | | 10 | 6 | 11 |
| Positive control with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 33.00 | 2.65 | 3.7 | 36 | 31 | 32 |
| | +(10%) | Untreated | | 15.00 | 1.00 | 17 | 14 | 15 | 16 |
| | +(10%) | Solvent | | 9.00 | 2.00 | | 7 | 9 | 11 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 4: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Citgo JP8 (POSF 4658)

| Test compound without metabolic activation: 10/28/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Citgo JP8 | 5.000 | 19.33 | 5.69 | 12 | 24 | 21 | 13 |
| | - | Citgo JP8 | 2.500 | 18.33 | 6.43 | 12 | 11 | 21 | 23 |
| | - | Citgo JP8 | 1.250 | 16.67 | 2.31 | 11 | 18 | 14 | 18 |
| | - | Citgo JP8 | 0.625 | 11.33 | 4.04 | 0.7 | 12 | 15 | 7 |
| | - | Citgo JP8 | 0.313 | 13.00 | 0.00 | 0.8 | 13 | 13 | 13 |
| | - | Citgo JP8 | 0.156 | 15.00 | 100 | 10 | 16 | 15 | 14 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (5%) | Citgo JP8 | 5.000 | 18.67 | 3.06 | 0.9 | 22 | 18 | 16 |
| | + (5%) | Citgo JP8 | 2.500 | 19.00 | 3.61 | 10 | 15 | 22 | 20 |
| | + (5%) | Citgo JP8 | 1.250 | 22.50 | 0.71 | 1.1 | 22 | 22 | 23 |
| | + (5%) | Citgo JP8 | 0.625 | 13.00 | 2.65 | 0.7 | 10 | 15 | 14 |
| | + (5%) | Citgo JP8 | 0.313 | 17.67 | 3.21 | 0.9 | 14 | 20 | 19 |
| | + (5%) | Citgo JP8 | 0.156 | 18.00 | 2.65 | 0.9 | 19 | 15 | 20 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (10%) | Citgo JP8 | 5.000 | 27.67 | 5.51 | 14 | 25 | 34 | 24 |
| | + (10%) | Citgo JP8 | 2.500 | 14.33 | 6.11 | 0.7 | 21 | 9 | 13 |
| | + (10%) | Citgo JP8 | 1.250 | 20.00 | 5.20 | 1.0 | 26 | 17 | 17 |
| | + (10%) | Citgo JP8 | 0.625 | 15.33 | 3.79 | 0.8 | 11 | 17 | 18 |
| | + (10%) | Citgo JP8 | 0.313 | 14.50 | 0.71 | 0.7 | 15 | 14 | NA |
| | + (10%) | Citgo JP8 | 0.156 | 18.33 | 5.51 | 0.9 | 21 | 22 | 12 |
| Positive control without metabolic activation: 10/28/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 1304.67 | 323.71 | 83.3 | 1640 | 1280 | 994 |
| | - | Untreated | | 20.67 | 2.89 | 13 | 19 | 24 | 19 |
| | - | Solvent | | 15.67 | 0.58 | | 15 | 16 | 16 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (5%) | 2-Anthramine | 3 | 55.67 | 2.52 | 2.8 | 56 | 58 | 53 |
| | + (5%) | Untreated | | 22.67 | 5.03 | 1.1 | 18 | 28 | 22 |
| | + (5%) | Solvent | | 20.00 | 100 | | 20 | 19 | 21 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (10%) | 2-Anthramine | 3 | 42.33 | 2.31 | 2.2 | 45 | 41 | 41 |
| | + (10%) | Untreated | | 26.00 | 5.20 | 13 | 29 | 29 | 20 |
| | + (10%) | Solvent | | 19.67 | 3.79 | | 24 | 17 | 18 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 5: Individual and mean plate counts for *E. coli* WP2 exposed to Citgo JP8 (POSF 4658)

| Test compound without metabolic activation: 12/3/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Citgo JP8 | 5.000 | 39.00 | 7.55 | 0.8 | 40 | 46 | 31 |
| | - | Citgo JP8 | 2.500 | 45.33 | 10.50 | 0.9 | 56 | 35 | 45 |
| | - | Citgo JP8 | 1250 | 48.00 | 1.73 | 1.0 | 49 | 46 | 49 |
| | - | Citgo JP8 | 0.625 | 50.67 | 3.06 | 1.1 | 48 | 54 | 50 |
| | - | Citgo JP8 | 0.313 | 37.33 | 10.12 | 0.8 | 31 | 32 | 49 |
| | - | Citgo JP8 | 0.156 | 37.00 | 6.93 | 0.8 | 29 | 41 | 41 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | Citgo JP8 | 5.000 | 50.67 | 14.05 | 0.8 | 52 | 36 | 64 |
| | +(5%) | Citgo JP8 | 2.500 | 58.00 | 5.29 | 0.9 | 62 | 60 | 52 |
| | +(5%) | Citgo JP8 | 1250 | 59.67 | 2.31 | 0.9 | 61 | 57 | 61 |
| | +(5%) | Citgo JP8 | 0.625 | 66.00 | 9.17 | 1.0 | 74 | 68 | 56 |
| | +(5%) | Citgo JP8 | 0.313 | 66.33 | 7.09 | 1.0 | 60 | 74 | 65 |
| | +(5%) | Citgo JP8 | 0.156 | 55.33 | 8.08 | 0.9 | 54 | 48 | 64 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | Citgo JP8 | 5.000 | 59.67 | 21.78 | 1.2 | 42 | 84 | 53 |
| | +(10%) | Citgo JP8 | 2.500 | 64.00 | 0.00 | 1.2 | 64 | 64 | 64 |
| | +(10%) | Citgo JP8 | 1250 | 61.33 | 11.15 | 1.2 | 53 | 57 | 74 |
| | +(10%) | Citgo JP8 | 0.625 | 54.33 | 10.69 | 1.1 | 66 | 52 | 45 |
| | +(10%) | Citgo JP8 | 0.313 | 59.67 | 5.51 | 1.2 | 60 | 54 | 65 |
| | +(10%) | Citgo JP8 | 0.156 | 56.67 | 7.02 | 1.1 | 50 | 64 | 56 |
| Positive control without metabolic activation: 12/3/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 181.33 | 12.86 | 24.6 | 1172 | 1176 | 1196 |
| | - | Untreated | | 40.67 | 3.51 | 0.8 | 41 | 37 | 44 |
| | - | Solvent | | 48.00 | 3.61 | | 51 | 49 | 44 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 652.00 | 78.08 | 10.1 | 648 | 576 | 732 |
| | +(5%) | Untreated | | 64.67 | 14.19 | 1.0 | 52 | 80 | 62 |
| | +(5%) | Solvent | | 64.33 | 9.07 | | 56 | 63 | 74 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 614.67 | 90.89 | 11.9 | 712 | 600 | 532 |
| | +(10%) | Untreated | | 61.00 | 1.73 | 1.2 | 62 | 59 | 62 |
| | +(10%) | Solvent | | 51.67 | 13.58 | | 66 | 50 | 39 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 6: Individual and mean plate counts for *Salmonella* TA-98 exposed to Valero 25% Aromatic JP8 (POSF 8457)

| Test compound without metabolic activation: 11/5/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | Valero | 5.000 | 25.00 | 100 | 0.8 | 24 | 26 | 25 |
| | - | Valero | 2.500 | 28.00 | 3.61 | 0.9 | 25 | 27 | 32 |
| | - | Valero | 1250 | 3167 | 8.02 | 10 | 24 | 31 | 40 |
| | - | Valero | 0.625 | 40.67 | 4.93 | 13 | 43 | 35 | 44 |
| | - | Valero | 0.313 | 29.33 | 8.62 | 0.9 | 37 | 31 | 20 |
| | - | Valero | 0.156 | 34.67 | 8.08 | 11 | 36 | 26 | 42 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | Valero | 5.000 | 34.67 | 6.11 | 0.8 | 36 | 28 | 40 |
| | +(5%) | Valero | 2.500 | 33.67 | 4.73 | 0.8 | 32 | 30 | 39 |
| | +(5%) | Valero | 1250 | 33.00 | 7.00 | 0.7 | 30 | 28 | 41 |
| | +(5%) | Valero | 0.625 | 43.00 | 5.29 | 10 | 39 | 49 | 41 |
| | +(5%) | Valero | 0.313 | 46.67 | 6.66 | 10 | 50 | 39 | 51 |
| | +(5%) | Valero | 0.156 | 43.67 | 14.19 | 10 | 31 | 59 | 41 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | Valero | 5.000 | 37.33 | 9.71 | 0.8 | 48 | 35 | 29 |
| | +(10%) | Valero | 2.500 | 4100 | 2.65 | 0.8 | 39 | 44 | 40 |
| | +(10%) | Valero | 1250 | 43.33 | 13.01 | 0.9 | 56 | 44 | 30 |
| | +(10%) | Valero | 0.625 | 43.00 | 4.24 | 0.9 | NA | 40 | 46 |
| | +(10%) | Valero | 0.313 | 56.00 | 4.00 | 12 | 56 | 52 | 60 |
| | +(10%) | Valero | 0.156 | 45.00 | 5.29 | 0.9 | 49 | 47 | 39 |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 230.33 | 27.57 | 7.3 | 228 | 204 | 259 |
| | - | Untreated | | 34.67 | 9.07 | 11 | 43 | 36 | 25 |
| | - | Solvent | | 3167 | 153 | | 30 | 33 | 32 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 248.33 | 19.14 | 5.6 | 264 | 227 | 254 |
| | +(5%) | Untreated | | 48.00 | 12.00 | 11 | 36 | 48 | 60 |
| | +(5%) | Solvent | | 44.67 | 6.35 | | 41 | 41 | 52 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 136.33 | 11.24 | 2.8 | 139 | 124 | 146 |
| | +(10%) | Untreated | | 50.00 | 2.00 | 10 | 48 | 52 | 50 |
| | +(10%) | Solvent | | 48.67 | 2.08 | | 51 | 48 | 47 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 7: Individual and mean plate counts for *Salmonella* TA-100 exposed to Valero 25% Aromatic JP8 (POSF 8457)

| Test compound without metabolic activation: 10/18/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Valero | 5.000 | 15.67 | 8.74 | 0.9 | 123 | 106 | 118 |
| | - | Valero | 2.500 | 96.33 | 8.74 | 0.8 | 94 | 106 | 89 |
| | - | Valero | 1250 | 108.67 | 5.69 | 0.9 | 107 | 104 | 115 |
| | - | Valero | 0.625 | 117.00 | 8.72 | 0.9 | 123 | 107 | 121 |
| | - | Valero | 0.313 | 121.67 | 9.29 | 1.0 | 111 | 128 | 126 |
| | - | Valero | 0.156 | 15.00 | 1.00 | 0.9 | 115 | 114 | 116 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | Valero | 5.000 | 101.00 | 15.52 | 0.8 | 100 | 86 | 117 |
| | +(5%) | Valero | 2.500 | 102.00 | 2.00 | 0.9 | 102 | 104 | 100 |
| | +(5%) | Valero | 1250 | 116.33 | 11.68 | 1.0 | 106 | 129 | 114 |
| | +(5%) | Valero | 0.625 | 129.33 | 0.58 | 1.1 | 129 | 130 | 129 |
| | +(5%) | Valero | 0.313 | 120.33 | 13.28 | 1.0 | 128 | 128 | 105 |
| | +(5%) | Valero | 0.156 | 15.33 | 7.64 | 1.0 | 107 | 122 | 117 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | Valero | 5.000 | 108.33 | 10.41 | 0.9 | 105 | 120 | 100 |
| | +(10%) | Valero | 2.500 | 119.67 | 7.37 | 0.9 | 114 | 117 | 128 |
| | +(10%) | Valero | 1250 | 114.33 | 5.51 | 0.9 | 120 | 109 | 114 |
| | +(10%) | Valero | 0.625 | 120.00 | 8.54 | 0.9 | 111 | 128 | 121 |
| | +(10%) | Valero | 0.313 | 141.33 | 7.37 | 1.1 | 144 | 133 | 147 |
| | +(10%) | Valero | 0.156 | 131.00 | 8.54 | 1.0 | 130 | 140 | 123 |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2236.00 | 86.53 | 18.0 | 2164 | 2212 | 2332 |
| | - | Untreated | | 121.67 | 3.06 | 1.0 | 121 | 119 | 125 |
| | - | Solvent | | 124.00 | 13.53 | | 123 | 111 | 138 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 357.00 | 38.97 | 3.0 | 392 | 364 | 315 |
| | +(5%) | Untreated | | 144.33 | 7.51 | 1.2 | 153 | 140 | 140 |
| | +(5%) | Solvent | | 119.67 | 3.06 | | 119 | 123 | 117 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 263.50 | 13.44 | 2.1 | 254 | 273 | NA |
| | +(10%) | Untreated | | 132.00 | 4.36 | 1.0 | 129 | 130 | 137 |
| | +(10%) | Solvent | | 127.00 | 2.65 | | 129 | 128 | 124 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 8: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Valero 25% Aromatic JP8 (POSF 8457)

| Test compound without metabolic activation: 12/10/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Valero | 5.000 | 7.67 | 4.04 | 0.8 | 12 | 7 | 4 |
| | - | Valero | 2.500 | 10.33 | 2.31 | 1.0 | 13 | 9 | 9 |
| | - | Valero | 1.250 | 9.67 | 1.15 | 1.0 | 9 | 9 | 11 |
| | - | Valero | 0.625 | 10.67 | 1.53 | 1.1 | 9 | 11 | 12 |
| | - | Valero | 0.313 | 10.33 | 0.58 | 1.0 | 10 | 11 | 10 |
| | - | Valero | 0.156 | 9.67 | 0.58 | 1.0 | 10 | 9 | 10 |
| Test compound with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Valero | 5.000 | 11.00 | 2.65 | 12 | 10 | 9 | 14 |
| | +(5%) | Valero | 2.500 | 7.67 | 2.31 | 0.9 | 9 | 9 | 5 |
| | +(5%) | Valero | 1.250 | 13.67 | 1.15 | 1.5 | 15 | 13 | 13 |
| | +(5%) | Valero | 0.625 | 13.00 | 2.00 | 14 | 13 | 15 | 11 |
| | +(5%) | Valero | 0.313 | 12.00 | 2.65 | 13 | 9 | 13 | 14 |
| | +(5%) | Valero | 0.156 | 14.33 | 0.58 | 16 | 14 | 15 | 14 |
| Test compound with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Valero | 5.000 | 9.33 | 2.08 | 10 | 11 | 7 | 10 |
| | +(10%) | Valero | 2.500 | 10.67 | 0.58 | 12 | 11 | 11 | 10 |
| | +(10%) | Valero | 1.250 | 12.00 | 4.36 | 13 | 14 | 15 | 7 |
| | +(10%) | Valero | 0.625 | 8.00 | 1.73 | 0.9 | 7 | 10 | 7 |
| | +(10%) | Valero | 0.313 | 13.00 | 1.00 | 14 | 12 | 14 | 13 |
| | +(10%) | Valero | 0.156 | 10.00 | 3.46 | 1.1 | 12 | 12 | 6 |
| Positive control without metabolic activation: 12/10/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 617.33 | 94.16 | 61.7 | 686 | 510 | 656 |
| | - | Untreated | | 9.33 | 4.16 | 0.9 | 6 | 14 | 8 |
| | - | Solvent | | 10.00 | 2.65 | | 11 | 12 | 7 |
| Positive control with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 35.67 | 1.53 | 4.0 | 37 | 36 | 34 |
| | +(5%) | Untreated | | 13.67 | 2.31 | 1.5 | 15 | 15 | 11 |
| | +(5%) | Solvent | | 9.00 | 2.65 | | 10 | 6 | 11 |
| Positive control with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 33.00 | 2.65 | 3.7 | 36 | 31 | 32 |
| | +(10%) | Untreated | | 15.00 | 1.00 | 1.7 | 14 | 15 | 16 |
| | +(10%) | Solvent | | 9.00 | 2.00 | | 7 | 9 | 11 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 9: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Valero 25% Aromatic JP8 (POSF 8457)

| Test compound without metabolic activation: 10/28/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Valero | 5.000 | 15.00 | 3.61 | 1.0 | 14 | 19 | 12 |
| | - | Valero | 2.500 | 13.33 | 4.04 | 0.9 | 17 | 14 | 9 |
| | - | Valero | 1.250 | 17.33 | 2.52 | 1.1 | 15 | 20 | 17 |
| | - | Valero | 0.625 | 12.67 | 5.13 | 0.8 | 7 | 14 | 17 |
| | - | Valero | 0.313 | 13.67 | 2.08 | 0.9 | 16 | 13 | 12 |
| | - | Valero | 0.156 | 13.67 | 5.51 | 0.9 | 14 | 8 | 19 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | Valero | 5.000 | 17.33 | 5.51 | 0.9 | 11 | 20 | 21 |
| | +(5%) | Valero | 2.500 | 15.00 | 3.61 | 0.8 | 16 | 18 | 11 |
| | +(5%) | Valero | 1.250 | 23.00 | 6.24 | 1.2 | 18 | 21 | 30 |
| | +(5%) | Valero | 0.625 | 18.50 | 2.12 | 0.9 | 20 | NA | 17 |
| | +(5%) | Valero | 0.313 | 16.33 | 3.79 | 0.8 | 12 | 18 | 19 |
| | +(5%) | Valero | 0.156 | 19.33 | 3.21 | 1.0 | 23 | 17 | 18 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | Valero | 5.000 | 22.50 | 2.12 | 1.1 | 24 | NA | 21 |
| | +(10%) | Valero | 2.500 | 18.67 | 7.23 | 0.9 | 15 | 27 | 14 |
| | +(10%) | Valero | 1.250 | 18.00 | 7.00 | 0.9 | 11 | 18 | 25 |
| | +(10%) | Valero | 0.625 | 23.00 | 7.21 | 1.2 | 15 | 29 | 25 |
| | +(10%) | Valero | 0.313 | 21.67 | 4.62 | 1.1 | 27 | 19 | 19 |
| | +(10%) | Valero | 0.156 | 25.00 | 1.41 | 1.3 | 24 | NA | 26 |
| Positive control without metabolic activation: 10/28/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 1304.67 | 323.71 | 83.3 | 1640 | 1280 | 994 |
| | - | Untreated | | 20.67 | 2.89 | 1.3 | 19 | 24 | 19 |
| | - | Solvent | | 15.67 | 0.58 | | 15 | 16 | 16 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 55.67 | 2.52 | 2.8 | 56 | 58 | 53 |
| | +(5%) | Untreated | | 22.67 | 5.03 | 1.1 | 18 | 28 | 22 |
| | +(5%) | Solvent | | 20.00 | 1.00 | | 20 | 19 | 21 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 42.33 | 2.31 | 2.2 | 45 | 41 | 41 |
| | +(10%) | Untreated | | 26.00 | 5.20 | 1.3 | 29 | 29 | 20 |
| | +(10%) | Solvent | | 19.67 | 3.79 | | 24 | 17 | 18 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 10: Individual and mean plate counts for *E. coli* WP2 exposed to Valero 25% Aromatic JP8 (POSF 8457)

| Test compound without metabolic activation: 12/3/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Valero | 5.000 | 40.67 | 6.03 | 0.8 | 35 | 40 | 47 |
| | - | Valero | 2.500 | 47.67 | 8.50 | 1.0 | 39 | 56 | 48 |
| | - | Valero | 1.250 | 45.67 | 6.35 | 1.0 | 53 | 42 | 42 |
| | - | Valero | 0.625 | 46.33 | 6.11 | 1.0 | 53 | 41 | 45 |
| | - | Valero | 0.313 | 46.33 | 3.21 | 1.0 | 50 | 45 | 44 |
| | - | Valero | 0.156 | 44.00 | 2.00 | 0.9 | 42 | 44 | 46 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | Valero | 5.000 | 51.00 | 4.36 | 0.8 | 49 | 48 | 56 |
| | +(5%) | Valero | 2.500 | 56.00 | 4.58 | 0.9 | 51 | 60 | 57 |
| | +(5%) | Valero | 1.250 | 51.67 | 5.69 | 0.8 | 47 | 58 | 50 |
| | +(5%) | Valero | 0.625 | 57.33 | 2.31 | 0.9 | 60 | 56 | 56 |
| | +(5%) | Valero | 0.313 | 55.67 | 1.15 | 0.9 | 57 | 55 | 55 |
| | +(5%) | Valero | 0.156 | 49.00 | 7.00 | 0.8 | 49 | 56 | 42 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | Valero | 5.000 | 51.67 | 3.06 | 1.0 | 51 | 55 | 49 |
| | +(10%) | Valero | 2.500 | 50.67 | 1.15 | 1.0 | 50 | 50 | 52 |
| | +(10%) | Valero | 1.250 | 57.00 | 7.81 | 1.1 | 62 | 61 | 48 |
| | +(10%) | Valero | 0.625 | 61.33 | 6.66 | 1.2 | 69 | 57 | 58 |
| | +(10%) | Valero | 0.313 | 56.33 | 4.73 | 1.1 | 60 | 58 | 51 |
| | +(10%) | Valero | 0.156 | 51.33 | 2.08 | 1.0 | 53 | 52 | 49 |
| Positive control without metabolic activation: 12/3/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1181.33 | 12.86 | 24.6 | 1172 | 1176 | 1196 |
| | - | Untreated | | 40.67 | 3.51 | 0.8 | 41 | 37 | 44 |
| | - | Solvent | | 48.00 | 3.61 | | 51 | 49 | 44 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 652.00 | 78.08 | 10.1 | 648 | 576 | 732 |
| | +(5%) | Untreated | | 64.67 | 14.19 | 1.0 | 52 | 80 | 62 |
| | +(5%) | Solvent | | 64.33 | 9.07 | | 56 | 63 | 74 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 614.67 | 90.89 | 11.9 | 712 | 600 | 532 |
| | +(10%) | Untreated | | 61.00 | 1.73 | 1.2 | 62 | 59 | 62 |
| | +(10%) | Solvent | | 51.67 | 13.58 | | 66 | 50 | 39 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 11: Individual and mean plate counts for *Salmonella* TA-98 exposed to KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF

10327)

| Test compound without metabolic activation: 11/5/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | KiOR | 2.500 | 28.33 | 8.62 | 0.9 | 30 | 36 | 19 |
| | - | KiOR | 1250 | 35.67 | 5.69 | 1.1 | 34 | 31 | 42 |
| | - | KiOR | 0.625 | 26.67 | 7.64 | 0.8 | 35 | 20 | 25 |
| | - | KiOR | 0.313 | 27.67 | 7.37 | 0.9 | 25 | 36 | 22 |
| | - | KiOR | 0.156 | 24.00 | 3.00 | 0.8 | 21 | 24 | 27 |
| | - | KiOR | 0.078 | 30.33 | 2.31 | 1.0 | 29 | 33 | 29 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | KiOR | 2.500 | 38.33 | 153 | 0.9 | 37 | 38 | 40 |
| | +(5%) | KiOR | 1250 | 42.00 | 7.00 | 0.9 | 49 | 42 | 35 |
| | +(5%) | KiOR | 0.625 | 43.33 | 5.51 | 1.0 | 47 | 46 | 37 |
| | +(5%) | KiOR | 0.313 | 37.33 | 5.13 | 0.8 | 43 | 33 | 36 |
| | +(5%) | KiOR | 0.156 | 38.33 | 153 | 0.9 | 40 | 37 | 38 |
| | +(5%) | KiOR | 0.078 | 32.67 | 8.14 | 0.7 | 27 | 29 | 42 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | KiOR | 2.500 | 38.67 | 1.15 | 0.8 | 38 | 40 | 38 |
| | +(10%) | KiOR | 1250 | 38.67 | 2.52 | 0.8 | 41 | 39 | 36 |
| | +(10%) | KiOR | 0.625 | 48.33 | 153 | 1.0 | 48 | 50 | 47 |
| | +(10%) | KiOR | 0.313 | 38.67 | 2.52 | 0.8 | 41 | 36 | 39 |
| | +(10%) | KiOR | 0.156 | 42.67 | 2.31 | 0.9 | 44 | 44 | 40 |
| | +(10%) | KiOR | 0.078 | 40.00 | 4.36 | 0.8 | 43 | 35 | 42 |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 230.33 | 27.57 | 7.3 | 228 | 204 | 259 |
| | - | Untreated | | 34.67 | 9.07 | 1.1 | 43 | 36 | 25 |
| | - | Solvent | | 31.67 | 153 | | 30 | 33 | 32 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 248.33 | 19.14 | 5.6 | 264 | 227 | 254 |
| | +(5%) | Untreated | | 48.00 | 12.00 | 1.1 | 36 | 48 | 60 |
| | +(5%) | Solvent | | 44.67 | 6.35 | | 41 | 41 | 52 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 136.33 | 11.24 | 2.8 | 139 | 124 | 146 |
| | +(10%) | Untreated | | 50.00 | 2.00 | 1.0 | 48 | 52 | 50 |
| | +(10%) | Solvent | | 48.67 | 2.08 | | 51 | 48 | 47 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 12: Individual and mean plate counts for *Salmonella* TA-100 exposed to KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327)

| Test compound without metabolic activation: 11/19/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | KiOR | 2.500 | 131.67 | 7.51 | 0.9 | 124 | 132 | 139 |
| | - | KiOR | 1250 | 135.00 | 3.61 | 1.0 | 139 | 134 | 132 |
| | - | KiOR | 0.625 | 135.33 | 6.81 | 1.0 | 130 | 143 | 133 |
| | - | KiOR | 0.313 | 131.00 | 17.35 | 0.9 | 116 | 127 | 150 |
| | - | KiOR | 0.156 | 154.33 | 9.45 | 1.1 | 151 | 165 | 147 |
| | - | KiOR | 0.078 | 167.33 | 22.23 | 1.2 | 155 | 193 | 154 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | KiOR | 2.500 | 116.00 | 2.83 | 0.9 | 118 | 114 | NA |
| | +(5%) | KiOR | 1250 | 101.00 | 6.08 | 0.8 | 97 | 98 | 108 |
| | +(5%) | KiOR | 0.625 | 118.67 | 13.05 | 0.9 | 129 | 123 | 104 |
| | +(5%) | KiOR | 0.313 | 122.00 | 16.82 | 1.0 | 141 | 116 | 109 |
| | +(5%) | KiOR | 0.156 | 129.33 | 10.21 | 1.0 | 122 | 125 | 141 |
| | +(5%) | KiOR | 0.078 | 126.33 | 10.07 | 1.0 | 137 | 125 | 117 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | KiOR | 2.500 | 108.33 | 10.79 | 0.9 | 116 | 96 | 113 |
| | +(10%) | KiOR | 1250 | 124.67 | 15.01 | 1.0 | 110 | 124 | 140 |
| | +(10%) | KiOR | 0.625 | 129.00 | 8.19 | 1.1 | 122 | 127 | 138 |
| | +(10%) | KiOR | 0.313 | 131.33 | 3.21 | 1.1 | 135 | 129 | 130 |
| | +(10%) | KiOR | 0.156 | 142.00 | 7.00 | 1.2 | 145 | 134 | 147 |
| | +(10%) | KiOR | 0.078 | 130.50 | 0.71 | 1.1 | 131 | 130 | NA |
| Positive control without metabolic activation: 11/19/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2175.33 | 126.21 | 15.7 | 2138 | 2316 | 2072 |
| | - | Untreated | | 139.67 | 2.31 | 1.0 | 141 | 137 | 141 |
| | - | Solvent | | 138.67 | 9.61 | | 137 | 149 | 130 |
| Positive control with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 382.67 | 38.81 | 3.0 | 347 | 424 | 377 |
| | +(5%) | Untreated | | 135.67 | 11.59 | 1.1 | 149 | 128 | 130 |
| | +(5%) | Solvent | | 127.67 | 3.51 | | 124 | 128 | 131 |
| Positive control with metabolic activation: 11/19/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 297.00 | 3.46 | 2.5 | 295 | 295 | 301 |
| | +(10%) | Untreated | | 132.67 | 2.31 | 1.1 | 134 | 130 | 134 |
| | +(10%) | Solvent | | 121.00 | 5.66 | | NA | 117 | 125 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 13: Individual and mean plate counts for *Salmonella* TA-1535 exposed to KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327)

| Test compound without metabolic activation: 11/22/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | KiOR | 2.500 | 8.00 | 4.58 | 0.8 | 4 | 13 | 7 |
| | - | KiOR | 1250 | 9.00 | 2.00 | 0.9 | 7 | 11 | 9 |
| | - | KiOR | 0.625 | 9.00 | 2.65 | 0.9 | 11 | 10 | 6 |
| | - | KiOR | 0.313 | 9.67 | 1.53 | 0.9 | 8 | 11 | 10 |
| | - | KiOR | 0.156 | 7.00 | 0.00 | 0.7 | 7 | 7 | 7 |
| | - | KiOR | 0.078 | 8.67 | 3.79 | 0.8 | 7 | 13 | 6 |
| Test compound with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | KiOR | 2.500 | 10.67 | 1.15 | 12 | 10 | 12 | 10 |
| | +(5%) | KiOR | 1250 | 9.00 | 4.24 | 10 | 12 | 6 | NA |
| | +(5%) | KiOR | 0.625 | 13.67 | 4.16 | 15 | 9 | 15 | 17 |
| | +(5%) | KiOR | 0.313 | 8.33 | 2.52 | 0.9 | 11 | 6 | 8 |
| | +(5%) | KiOR | 0.156 | 11.00 | 5.57 | 12 | 6 | 17 | 10 |
| | +(5%) | KiOR | 0.078 | 10.67 | 1.53 | 12 | 11 | 9 | 12 |
| Test compound with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | KiOR | 2.500 | 6.67 | 2.08 | 0.7 | 5 | 6 | 9 |
| | +(10%) | KiOR | 1250 | 9.33 | 2.08 | 10 | 7 | 10 | 11 |
| | +(10%) | KiOR | 0.625 | 10.67 | 5.03 | 12 | 10 | 16 | 6 |
| | +(10%) | KiOR | 0.313 | 9.67 | 1.53 | 11 | 8 | 10 | 11 |
| | +(10%) | KiOR | 0.156 | 16.33 | 10.69 | 18 | 28 | 7 | 14 |
| | +(10%) | KiOR | 0.078 | 8.33 | 2.52 | 0.9 | 6 | 11 | 8 |
| Positive control without metabolic activation: 11/22/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 564.00 | 32.19 | 54.6 | 560 | 534 | 598 |
| | - | Untreated | | 14.33 | 5.13 | 14 | 13 | 20 | 10 |
| | - | Solvent | | 10.33 | 4.04 | | 14 | 11 | 6 |
| Positive control with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 35.67 | 1.53 | 4.0 | 37 | 36 | 34 |
| | +(5%) | Untreated | | 13.67 | 2.31 | 15 | 15 | 15 | 11 |
| | +(5%) | Solvent | | 9.00 | 2.65 | | 10 | 6 | 11 |
| Positive control with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 33.00 | 2.65 | 3.7 | 36 | 31 | 32 |
| | +(10%) | Untreated | | 15.00 | 1.00 | 17 | 14 | 15 | 16 |
| | +(10%) | Solvent | | 9.00 | 2.00 | | 7 | 9 | 11 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 14: Individual and mean plate counts for *Salmonella* TA-1537 exposed to KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF 10327)

| Test compound without metabolic activation: 10/28/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | KiOR | 2.500 | 10.33 | 2.08 | 0.7 | 12 | 11 | 8 |
| | - | KiOR | 1250 | 10.00 | 5.29 | 0.6 | 4 | 12 | 14 |
| | - | KiOR | 0.625 | 13.67 | 5.03 | 0.9 | 9 | 13 | 19 |
| | - | KiOR | 0.313 | 17.33 | 2.89 | 1.1 | 14 | 19 | 19 |
| | - | KiOR | 0.156 | 14.67 | 5.51 | 0.9 | 20 | 9 | 15 |
| | - | KiOR | 0.078 | 17.00 | 1.73 | 1.1 | 18 | 18 | 15 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | KiOR | 2.500 | 14.33 | 1.53 | 0.7 | 16 | 14 | 13 |
| | +(5%) | KiOR | 1250 | 21.00 | 4.58 | 1.1 | 22 | 16 | 25 |
| | +(5%) | KiOR | 0.625 | 14.33 | 3.21 | 0.7 | 13 | 18 | 12 |
| | +(5%) | KiOR | 0.313 | 13.00 | 7.55 | 0.7 | 12 | 6 | 21 |
| | +(5%) | KiOR | 0.156 | 18.67 | 3.79 | 0.9 | 17 | 23 | 16 |
| | +(5%) | KiOR | 0.078 | 20.00 | 4.24 | 1.0 | 17 | NA | 23 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | KiOR | 2.500 | 22.33 | 2.52 | 1.1 | 22 | 20 | 25 |
| | +(10%) | KiOR | 1250 | 19.33 | 0.58 | 1.0 | 19 | 20 | 19 |
| | +(10%) | KiOR | 0.625 | 19.67 | 5.51 | 1.0 | 17 | 26 | 16 |
| | +(10%) | KiOR | 0.313 | 20.67 | 1.15 | 1.1 | 20 | 20 | 22 |
| | +(10%) | KiOR | 0.156 | 25.00 | 3.46 | 1.3 | 21 | 27 | 27 |
| | +(10%) | KiOR | 0.078 | 24.33 | 7.64 | 1.2 | 31 | 26 | 16 |
| Positive control without metabolic activation: 10/28/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 1304.67 | 323.71 | 83.3 | 1640 | 1280 | 994 |
| | - | Untreated | | 20.67 | 2.89 | 1.3 | 19 | 24 | 19 |
| | - | Solvent | | 15.67 | 0.58 | | 15 | 16 | 16 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 55.67 | 2.52 | 2.8 | 56 | 58 | 53 |
| | +(5%) | Untreated | | 22.67 | 5.03 | 1.1 | 18 | 28 | 22 |
| | +(5%) | Solvent | | 20.00 | 1.00 | | 20 | 19 | 21 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 42.33 | 2.31 | 2.2 | 45 | 41 | 41 |
| | +(10%) | Untreated | | 26.00 | 5.20 | 1.3 | 29 | 29 | 20 |
| | +(10%) | Solvent | | 19.67 | 3.79 | | 24 | 17 | 18 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 15: Individual and mean plate counts for *E. coli* WP2 exposed to KiOR Hydrotreated Kerosene/Bio-Kerosene (POSF

10327)

| Test compound without metabolic activation: 12/3/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | KiOR | 2.500 | 40.67 | 3.21 | 0.8 | 37 | 43 | 42 |
| | - | KiOR | 1250 | 49.00 | 5.20 | 1.0 | 46 | 55 | 46 |
| | - | KiOR | 0.625 | 37.33 | 6.66 | 0.8 | 30 | 39 | 43 |
| | - | KiOR | 0.313 | 49.00 | 5.20 | 1.0 | 55 | 46 | 46 |
| | - | KiOR | 0.156 | 42.67 | 3.79 | 0.9 | 41 | 47 | 40 |
| | - | KiOR | 0.078 | 44.00 | 3.00 | 0.9 | 44 | 47 | 41 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | KiOR | 2.500 | 52.33 | 0.58 | 0.8 | 52 | 53 | 52 |
| | +(5%) | KiOR | 1250 | 59.00 | 3.61 | 0.9 | 56 | 58 | 63 |
| | +(5%) | KiOR | 0.625 | 54.00 | 10.82 | 0.8 | 42 | 63 | 57 |
| | +(5%) | KiOR | 0.313 | 52.00 | 5.20 | 0.8 | 46 | 55 | 55 |
| | +(5%) | KiOR | 0.156 | 50.33 | 9.29 | 0.8 | 40 | 53 | 58 |
| | +(5%) | KiOR | 0.078 | 55.33 | 3.51 | 0.9 | 59 | 52 | 55 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | KiOR | 2.500 | 54.00 | 3.00 | 1.0 | 51 | 57 | 54 |
| | +(10%) | KiOR | 1250 | 52.33 | 4.62 | 1.0 | 55 | 55 | 47 |
| | +(10%) | KiOR | 0.625 | 51.67 | 6.51 | 1.0 | 52 | 45 | 58 |
| | +(10%) | KiOR | 0.313 | 52.67 | 5.51 | 1.0 | 50 | 59 | 49 |
| | +(10%) | KiOR | 0.156 | 48.33 | 3.21 | 0.9 | 47 | 52 | 46 |
| | +(10%) | KiOR | 0.078 | 48.67 | 2.89 | 0.9 | 52 | 47 | 47 |
| Positive control without metabolic activation: 12/3/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1181.33 | 12.86 | 24.6 | 1172 | 1176 | 1196 |
| | - | Untreated | | 40.67 | 3.51 | 0.8 | 41 | 37 | 44 |
| | - | Solvent | | 48.00 | 3.61 | | 51 | 49 | 44 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 652.00 | 78.08 | 10.1 | 648 | 576 | 732 |
| | +(5%) | Untreated | | 64.67 | 14.19 | 1.0 | 52 | 80 | 62 |
| | +(5%) | Solvent | | 64.33 | 9.07 | | 56 | 63 | 74 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 614.67 | 90.89 | 11.9 | 712 | 600 | 532 |
| | +(10%) | Untreated | | 61.00 | 1.73 | 1.2 | 62 | 59 | 62 |
| | +(10%) | Solvent | | 51.67 | 13.58 | | 66 | 50 | 39 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 16: Individual and mean plate counts for *Salmonella* TA-98 exposed to ARA ReadJet (POSF 10328)

| Test compound without metabolic activation: 11/5/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | ARA | 5.000 | 29.67 | 0.58 | 0.9 | 30 | 29 | 30 |
| | - | ARA | 2.500 | 28.67 | 3.21 | 0.9 | 31 | 30 | 25 |
| | - | ARA | 1250 | 29.33 | 9.87 | 0.9 | 34 | 36 | 18 |
| | - | ARA | 0.625 | 33.00 | 6.56 | 1.0 | 39 | 26 | 34 |
| | - | ARA | 0.313 | 32.33 | 7.23 | 1.0 | 24 | 37 | 36 |
| | - | ARA | 0.156 | 34.67 | 7.02 | 1.1 | 34 | 28 | 42 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | ARA | 5.000 | 33.67 | 5.86 | 0.8 | 38 | 27 | 36 |
| | +(5%) | ARA | 2.500 | 38.33 | 5.69 | 0.9 | 40 | 43 | 32 |
| | +(5%) | ARA | 1250 | 42.00 | 2.65 | 0.9 | 45 | 41 | 40 |
| | +(5%) | ARA | 0.625 | 43.33 | 4.62 | 1.0 | 46 | 46 | 38 |
| | +(5%) | ARA | 0.313 | 47.00 | 5.29 | 1.1 | 51 | 41 | 49 |
| | +(5%) | ARA | 0.156 | 47.67 | 7.37 | 1.1 | 45 | 42 | 56 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | ARA | 5.000 | 32.67 | 153 | 0.7 | 33 | 31 | 34 |
| | +(10%) | ARA | 2.500 | 42.00 | 12.49 | 0.9 | 56 | 32 | 38 |
| | +(10%) | ARA | 1250 | 41.33 | 5.51 | 0.8 | 35 | 44 | 45 |
| | +(10%) | ARA | 0.625 | 40.00 | 6.08 | 0.8 | 44 | 43 | 33 |
| | +(10%) | ARA | 0.313 | 44.00 | 10.82 | 0.9 | 53 | 32 | 47 |
| | +(10%) | ARA | 0.156 | 45.33 | 2.52 | 0.9 | 48 | 45 | 43 |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 230.33 | 27.57 | 7.3 | 228 | 204 | 259 |
| | - | Untreated | | 34.67 | 9.07 | 1.1 | 43 | 36 | 25 |
| | - | Solvent | | 31.67 | 153 | | 30 | 33 | 32 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 248.33 | 19.14 | 5.6 | 264 | 227 | 254 |
| | +(5%) | Untreated | | 48.00 | 12.00 | 1.1 | 36 | 48 | 60 |
| | +(5%) | Solvent | | 44.67 | 6.35 | | 41 | 41 | 52 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 136.33 | 11.24 | 2.8 | 139 | 124 | 146 |
| | +(10%) | Untreated | | 50.00 | 2.00 | 1.0 | 48 | 52 | 50 |
| | +(10%) | Solvent | | 48.67 | 2.08 | | 51 | 48 | 47 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 17: Individual and mean plate counts for *Salmonella* TA-100 exposed to ARA ReadJet (POSF 10328)

| Test compound without metabolic activation: 10/18/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | ARA | 5.000 | 99.33 | 4.62 | 0.8 | 94 | 102 | 102 |
| | - | ARA | 2.500 | 90.33 | 14.57 | 0.7 | 104 | 92 | 75 |
| | - | ARA | 1.250 | 100.67 | 3.06 | 0.8 | 98 | 104 | 100 |
| | - | ARA | 0.625 | 119.67 | 8.14 | 1.0 | 114 | 116 | 129 |
| | - | ARA | 0.313 | 121.00 | 3.61 | 1.0 | 122 | 124 | 117 |
| | - | ARA | 0.156 | 111.67 | 16.92 | 0.9 | 126 | 93 | 116 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | ARA | 5.000 | 101.33 | 9.07 | 0.8 | 111 | 93 | 100 |
| | +(5%) | ARA | 2.500 | 89.33 | 1.53 | 0.7 | 91 | 88 | 89 |
| | +(5%) | ARA | 1.250 | 127.67 | 15.04 | 1.1 | 120 | 118 | 145 |
| | +(5%) | ARA | 0.625 | 112.33 | 10.41 | 0.9 | 104 | 109 | 124 |
| | +(5%) | ARA | 0.313 | 108.67 | 1.53 | 0.9 | 109 | 110 | 107 |
| | +(5%) | ARA | 0.156 | 114.67 | 7.23 | 1.0 | 111 | 123 | 110 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | ARA | 5.000 | 100.67 | 8.50 | 0.8 | 92 | 101 | 109 |
| | +(10%) | ARA | 2.500 | 105.67 | 14.57 | 0.8 | 92 | 104 | 121 |
| | +(10%) | ARA | 1.250 | 120.67 | 9.61 | 1.0 | 131 | 119 | 112 |
| | +(10%) | ARA | 0.625 | 135.67 | 4.93 | 1.1 | 130 | 139 | 138 |
| | +(10%) | ARA | 0.313 | 137.33 | 8.96 | 1.1 | 142 | 143 | 127 |
| | +(10%) | ARA | 0.156 | 126.00 | 9.17 | 1.0 | 128 | 134 | 116 |
| Positive control without metabolic activation: 10/18/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2236.00 | 86.53 | 8.0 | 2164 | 2212 | 2332 |
| | - | Untreated | | 121.67 | 3.06 | 1.0 | 121 | 119 | 125 |
| | - | Solvent | | 124.00 | 13.53 | | 123 | 111 | 138 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 357.00 | 38.97 | 3.0 | 392 | 364 | 315 |
| | +(5%) | Untreated | | 144.33 | 7.51 | 1.2 | 153 | 140 | 140 |
| | +(5%) | Solvent | | 119.67 | 3.06 | | 119 | 123 | 117 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 263.50 | 13.44 | 2.1 | 254 | 273 | NA |
| | +(10%) | Untreated | | 132.00 | 4.36 | 1.0 | 129 | 130 | 137 |
| | +(10%) | Solvent | | 127.00 | 2.65 | | 129 | 128 | 124 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 18: Individual and mean plate counts for *Salmonella* TA-1535 exposed to ARA ReadJet (POSF 10328)

| Test compound without metabolic activation: 11/22/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | ARA | 5.000 | 6.67 | 2.31 | 0.6 | 4 | 8 | 8 |
| | - | ARA | 2.500 | 10.00 | 1.73 | 1.0 | 11 | 8 | 11 |
| | - | ARA | 1.250 | 10.33 | 2.89 | 1.0 | 7 | 12 | 12 |
| | - | ARA | 0.625 | 7.33 | 1.53 | 0.7 | 7 | 6 | 9 |
| | - | ARA | 0.313 | 11.33 | 1.53 | 1.1 | 13 | 11 | 10 |
| | - | ARA | 0.156 | 9.67 | 5.03 | 0.9 | 15 | 9 | 5 |
| Test compound with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | ARA | 5.000 | 9.33 | 2.52 | 1.0 | 12 | 7 | 9 |
| | +(5%) | ARA | 2.500 | 13.67 | 4.51 | 1.5 | 14 | 18 | 9 |
| | +(5%) | ARA | 1.250 | 10.00 | 2.83 | 1.1 | 12 | 8 | NA |
| | +(5%) | ARA | 0.625 | 13.00 | 3.61 | 1.4 | 12 | 17 | 10 |
| | +(5%) | ARA | 0.313 | 17.00 | 5.29 | 1.9 | 11 | 21 | 19 |
| | +(5%) | ARA | 0.156 | 16.00 | 2.65 | 1.8 | 13 | 18 | 17 |
| Test compound with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | ARA | 5.000 | 9.67 | 2.89 | 1.1 | 8 | 13 | 8 |
| | +(10%) | ARA | 2.500 | 10.00 | 3.61 | 1.1 | 9 | 14 | 7 |
| | +(10%) | ARA | 1.250 | 6.67 | 3.06 | 0.7 | 6 | 10 | 4 |
| | +(10%) | ARA | 0.625 | 8.33 | 1.15 | 0.9 | 9 | 9 | 7 |
| | +(10%) | ARA | 0.313 | 13.33 | 2.31 | 1.5 | 12 | 16 | 12 |
| | +(10%) | ARA | 0.156 | 9.33 | 2.52 | 1.0 | 12 | 7 | 9 |
| Positive control without metabolic activation: 11/22/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 564.00 | 32.19 | 54.6 | 560 | 534 | 598 |
| | - | Untreated | | 14.33 | 5.13 | 14 | 13 | 20 | 10 |
| | - | Solvent | | 10.33 | 4.04 | | 14 | 11 | 6 |
| Positive control with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 35.67 | 1.53 | 4.0 | 37 | 36 | 34 |
| | +(5%) | Untreated | | 13.67 | 2.31 | 1.5 | 15 | 15 | 11 |
| | +(5%) | Solvent | | 9.00 | 2.65 | | 10 | 6 | 11 |
| Positive control with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 33.00 | 2.65 | 3.7 | 36 | 31 | 32 |
| | +(10%) | Untreated | | 15.00 | 1.00 | 1.7 | 14 | 15 | 16 |
| | +(10%) | Solvent | | 9.00 | 2.00 | | 7 | 9 | 11 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 19: Individual and mean plate counts for *Salmonella* TA-1537 exposed to ARA ReadJet (POSF 10328)

| Test compound without metabolic activation: 11/15/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | ARA | 5.000 | 16.33 | 3.21 | 0.9 | 14 | 15 | 20 |
| | - | ARA | 2.500 | 16.33 | 5.13 | 0.9 | 12 | 22 | 15 |
| | - | ARA | 1.250 | 14.67 | 1.15 | 0.8 | 14 | 16 | 14 |
| | - | ARA | 0.625 | 19.00 | 4.36 | 1.1 | 17 | 24 | 16 |
| | - | ARA | 0.313 | 16.67 | 4.93 | 1.0 | 11 | 20 | 19 |
| | - | ARA | 0.156 | 15.00 | 4.58 | 0.9 | 16 | 10 | 19 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | ARA | 5.000 | 16.33 | 2.52 | 0.9 | 16 | 19 | 14 |
| | +(5%) | ARA | 2.500 | 20.33 | 4.73 | 1.1 | 22 | 24 | 15 |
| | +(5%) | ARA | 1.250 | 21.67 | 1.15 | 1.2 | 21 | 21 | 23 |
| | +(5%) | ARA | 0.625 | 22.33 | 2.52 | 1.2 | 22 | 20 | 25 |
| | +(5%) | ARA | 0.313 | 18.67 | 1.15 | 1.0 | 18 | 20 | 18 |
| | +(5%) | ARA | 0.156 | 19.67 | 6.51 | 1.1 | 26 | 13 | 20 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | ARA | 5.000 | 22.33 | 1.15 | 1.1 | 23 | 23 | 21 |
| | +(10%) | ARA | 2.500 | 20.00 | 1.00 | 1.0 | 21 | 19 | 20 |
| | +(10%) | ARA | 1.250 | 18.67 | 8.50 | 0.9 | 19 | 27 | 10 |
| | +(10%) | ARA | 0.625 | 24.00 | 1.00 | 1.2 | 25 | 24 | 23 |
| | +(10%) | ARA | 0.313 | 18.33 | 2.31 | 0.9 | 21 | 17 | 17 |
| | +(10%) | ARA | 0.156 | 20.00 | 2.00 | 1.0 | 18 | 22 | 20 |
| Positive control without metabolic activation: 11/15/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 1184.00 | 98.00 | 68.3 | 162 | 106 | 1294 |
| | - | Untreated | | 17.33 | 2.08 | 1.0 | 15 | 18 | 19 |
| | - | Solvent | | 17.33 | 2.52 | | 15 | 17 | 20 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 67.33 | 6.35 | 3.7 | 60 | 71 | 71 |
| | +(5%) | Untreated | | 18.00 | 0.00 | 1.0 | 18 | 18 | 18 |
| | +(5%) | Solvent | | 18.00 | 1.73 | | 17 | 20 | 17 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 56.67 | 16.26 | 2.8 | 51 | 75 | 44 |
| | +(10%) | Untreated | | 22.00 | 1.73 | 1.1 | 21 | 21 | 24 |
| | +(10%) | Solvent | | 20.33 | 2.08 | | 22 | 18 | 21 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 20: Individual and mean plate counts for *E. coli* WP2 exposed to ARA ReadJet (POSF 10328)

| Test compound without metabolic activation: 12/3/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | ARA | 5.000 | 43.00 | 7.21 | 0.9 | 35 | 45 | 49 |
| | - | ARA | 2.500 | 39.00 | 3.61 | 0.8 | 38 | 43 | 36 |
| | - | ARA | 1250 | 43.33 | 3.51 | 0.9 | 47 | 43 | 40 |
| | - | ARA | 0.625 | 45.33 | 5.51 | 0.9 | 45 | 40 | 51 |
| | - | ARA | 0.313 | 32.00 | 1.73 | 0.7 | 31 | 31 | 34 |
| | - | ARA | 0.156 | 45.67 | 6.66 | 1.0 | 53 | 44 | 40 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | ARA | 5.000 | 58.00 | 14.00 | 0.9 | 52 | 74 | 48 |
| | +(5%) | ARA | 2.500 | 51.33 | 2.31 | 0.8 | 50 | 50 | 54 |
| | +(5%) | ARA | 1250 | 56.33 | 11.72 | 0.9 | 61 | 65 | 43 |
| | +(5%) | ARA | 0.625 | 44.00 | 9.17 | 0.7 | 52 | 46 | 34 |
| | +(5%) | ARA | 0.313 | 50.00 | 6.56 | 0.8 | 57 | 44 | 49 |
| | +(5%) | ARA | 0.156 | 53.00 | 4.58 | 0.8 | 54 | 48 | 57 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | ARA | 5.000 | 52.67 | 3.06 | 1.0 | 50 | 52 | 56 |
| | +(10%) | ARA | 2.500 | 58.33 | 6.66 | 1.1 | 60 | 51 | 64 |
| | +(10%) | ARA | 1250 | 55.33 | 7.37 | 1.1 | 58 | 47 | 61 |
| | +(10%) | ARA | 0.625 | 55.00 | 5.29 | 1.1 | 49 | 57 | 59 |
| | +(10%) | ARA | 0.313 | 60.67 | 6.43 | 1.2 | 68 | 58 | 56 |
| | +(10%) | ARA | 0.156 | 55.33 | 5.69 | 1.1 | 49 | 60 | 57 |
| Positive control without metabolic activation: 12/3/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 181.33 | 12.86 | 24.6 | 1172 | 1176 | 1196 |
| | - | Untreated | | 40.67 | 3.51 | 0.8 | 41 | 37 | 44 |
| | - | Solvent | | 48.00 | 3.61 | | 51 | 49 | 44 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 652.00 | 78.08 | 10.1 | 648 | 576 | 732 |
| | +(5%) | Untreated | | 64.67 | 14.19 | 1.0 | 52 | 80 | 62 |
| | +(5%) | Solvent | | 64.33 | 9.07 | | 56 | 63 | 74 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 614.67 | 90.89 | 11.9 | 712 | 600 | 532 |
| | +(10%) | Untreated | | 61.00 | 1.73 | 1.2 | 62 | 59 | 62 |
| | +(10%) | Solvent | | 51.67 | 13.58 | | 66 | 50 | 39 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 21: Individual and mean plate counts for *Salmonella* TA-98 exposed to Amyris Farnesane (POSF 10329)

| Test compound without metabolic activation: 11/5/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | Amyris | 5.000 | 28.00 | 8.72 | 0.9 | 24 | 38 | 22 |
| | - | Amyris | 2.500 | 30.00 | 3.46 | 0.9 | 34 | 28 | 28 |
| | - | Amyris | 1.250 | 30.67 | 5.51 | 1.0 | 27 | 28 | 37 |
| | - | Amyris | 0.625 | 33.00 | 4.00 | 1.0 | 29 | 37 | 33 |
| | - | Amyris | 0.313 | 29.67 | 4.51 | 0.9 | 34 | 30 | 25 |
| | - | Amyris | 0.156 | 36.67 | 4.16 | 1.2 | 38 | 32 | 40 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (5%) | Amyris | 5.000 | 40.00 | 5.20 | 0.9 | 46 | 37 | 37 |
| | + (5%) | Amyris | 2.500 | 39.00 | 3.00 | 0.9 | 42 | 36 | 39 |
| | + (5%) | Amyris | 1.250 | 41.33 | 4.73 | 0.9 | 43 | 36 | 45 |
| | + (5%) | Amyris | 0.625 | 37.33 | 3.21 | 0.8 | 41 | 35 | 36 |
| | + (5%) | Amyris | 0.313 | 38.00 | 7.21 | 0.9 | 46 | 36 | 32 |
| | + (5%) | Amyris | 0.156 | 43.67 | 5.13 | 1.0 | 45 | 48 | 38 |
| Test compound with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (10%) | Amyris | 5.000 | 42.00 | 6.24 | 0.9 | 35 | 47 | 44 |
| | + (10%) | Amyris | 2.500 | 33.67 | 6.11 | 0.7 | 39 | 35 | 27 |
| | + (10%) | Amyris | 1.250 | 42.67 | 1.15 | 0.9 | 42 | 42 | 44 |
| | + (10%) | Amyris | 0.625 | 42.00 | 5.20 | 0.9 | 36 | 45 | 45 |
| | + (10%) | Amyris | 0.313 | 46.33 | 2.52 | 1.0 | 46 | 49 | 44 |
| | + (10%) | Amyris | 0.156 | 48.67 | 9.61 | 1.0 | 40 | 59 | 47 |
| Positive control without metabolic activation: 11/5/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 230.33 | 27.57 | 7.3 | 228 | 204 | 259 |
| | - | Untreated | | 34.67 | 9.07 | 1.1 | 43 | 36 | 25 |
| | - | Solvent | | 31.67 | 1.53 | | 30 | 33 | 32 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (5%) | 2-Anthramine | 0.5 | 248.33 | 19.14 | 5.6 | 264 | 227 | 254 |
| | + (5%) | Untreated | | 48.00 | 12.00 | 1.1 | 36 | 48 | 60 |
| | + (5%) | Solvent | | 44.67 | 6.35 | | 41 | 41 | 52 |
| Positive control with metabolic activation: 11/5/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | + (10%) | 2-Anthramine | 0.5 | 136.33 | 11.24 | 2.8 | 139 | 124 | 146 |
| | + (10%) | Untreated | | 50.00 | 2.00 | 1.0 | 48 | 52 | 50 |
| | + (10%) | Solvent | | 48.67 | 2.08 | | 51 | 48 | 47 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 22: Individual and mean plate counts for *Salmonella* TA-100 exposed to Amyris Farnesane (POSF 10329)

| Test compound without metabolic activation: 10/18/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Amyris | 5.000 | 117.67 | 11.02 | 0.9 | 105 | 123 | 125 |
| | - | Amyris | 2.500 | 124.00 | 5.57 | 1.0 | 125 | 118 | 129 |
| | - | Amyris | 1.250 | 111.00 | 8.89 | 0.9 | 118 | 114 | 101 |
| | - | Amyris | 0.625 | 118.33 | 7.64 | 1.0 | 110 | 120 | 125 |
| | - | Amyris | 0.313 | 117.33 | 11.93 | 0.9 | 121 | 127 | 104 |
| | - | Amyris | 0.156 | 118.00 | 13.08 | 1.0 | 112 | 133 | 109 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | Amyris | 5.000 | 93.33 | 14.43 | 0.8 | 85 | 85 | 110 |
| | +(5%) | Amyris | 2.500 | 107.00 | 14.53 | 0.9 | 122 | 93 | 106 |
| | +(5%) | Amyris | 1.250 | 118.67 | 9.07 | 1.0 | 129 | 115 | 112 |
| | +(5%) | Amyris | 0.625 | 110.00 | 5.66 | 0.9 | NA | 106 | 114 |
| | +(5%) | Amyris | 0.313 | 105.67 | 10.69 | 0.9 | 100 | 99 | 118 |
| | +(5%) | Amyris | 0.156 | 121.33 | 6.51 | 1.0 | 121 | 128 | 115 |
| Test compound with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | Amyris | 5.000 | 119.67 | 19.66 | 0.9 | 142 | 112 | 105 |
| | +(10%) | Amyris | 2.500 | 108.00 | 10.54 | 0.9 | 97 | 109 | 118 |
| | +(10%) | Amyris | 1.250 | 132.67 | 25.38 | 1.0 | 112 | 161 | 125 |
| | +(10%) | Amyris | 0.625 | 108.33 | 2.31 | 0.9 | 107 | 111 | 107 |
| | +(10%) | Amyris | 0.313 | 127.33 | 15.28 | 1.0 | 124 | 144 | 114 |
| | +(10%) | Amyris | 0.156 | 117.67 | 13.80 | 0.9 | 123 | 102 | 128 |
| Positive control without metabolic activation: 10/18/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2236.00 | 86.53 | 18.0 | 2164 | 2212 | 2332 |
| | - | Untreated | | 12167 | 3.06 | 1.0 | 121 | 119 | 125 |
| | - | Solvent | | 124.00 | 13.53 | | 123 | 111 | 138 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 357.00 | 38.97 | 3.0 | 392 | 364 | 315 |
| | +(5%) | Untreated | | 144.33 | 7.51 | 1.2 | 153 | 140 | 140 |
| | +(5%) | Solvent | | 119.67 | 3.06 | | 119 | 123 | 117 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 263.50 | 13.44 | 2.1 | 254 | 273 | NA |
| | +(10%) | Untreated | | 132.00 | 4.36 | 1.0 | 129 | 130 | 137 |
| | +(10%) | Solvent | | 127.00 | 2.65 | | 129 | 128 | 124 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 23: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Amyris Farnesane (POSF 10329)

| Test compound without metabolic activation: 10/22/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Amyris | 5.000 | 11.33 | 4.16 | 0.7 | 10 | 8 | 16 |
| | - | Amyris | 2.500 | 10.67 | 3.21 | 0.7 | 12 | 7 | 13 |
| | - | Amyris | 1.250 | 13.00 | 2.00 | 0.8 | 11 | 15 | 13 |
| | - | Amyris | 0.625 | 12.67 | 2.89 | 0.8 | 16 | 11 | 11 |
| | - | Amyris | 0.313 | 13.33 | 0.58 | 0.8 | 14 | 13 | 13 |
| | - | Amyris | 0.156 | 13.00 | 7.55 | 0.8 | 14 | 5 | 20 |
| Test compound with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Amyris | 5.000 | 10.00 | 4.58 | 1.1 | 5 | 11 | 14 |
| | +(5%) | Amyris | 2.500 | 9.33 | 2.52 | 1.0 | 7 | 9 | 12 |
| | +(5%) | Amyris | 1.250 | 13.67 | 7.77 | 1.5 | 16 | 20 | 5 |
| | +(5%) | Amyris | 0.625 | 10.33 | 6.66 | 1.1 | 12 | 16 | 3 |
| | +(5%) | Amyris | 0.313 | 9.67 | 2.08 | 1.1 | 9 | 12 | 8 |
| | +(5%) | Amyris | 0.156 | 17.50 | 10.61 | 1.9 | 10 | 25 | NA |
| Test compound with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Amyris | 5.000 | 12.00 | 5.57 | 1.3 | 6 | 17 | 13 |
| | +(10%) | Amyris | 2.500 | 12.33 | 1.15 | 1.4 | 11 | 13 | 13 |
| | +(10%) | Amyris | 1.250 | 10.67 | 2.52 | 1.2 | 11 | 13 | 8 |
| | +(10%) | Amyris | 0.625 | 12.00 | 3.61 | 1.3 | 16 | 9 | 11 |
| | +(10%) | Amyris | 0.313 | 11.67 | 2.08 | 1.3 | 14 | 11 | 10 |
| | +(10%) | Amyris | 0.156 | 10.67 | 2.89 | 1.2 | 14 | 9 | 9 |
| Positive control without metabolic activation: 10/22/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 460.00 | 19.97 | 28.2 | 465 | 477 | 438 |
| | - | Untreated | | 15.00 | 2.65 | 0.9 | 16 | 12 | 17 |
| | - | Solvent | | 16.33 | 5.69 | | 18 | 21 | 10 |
| Positive control with metabolic activation: 10/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 35.67 | 153 | 4.0 | 37 | 36 | 34 |
| | +(5%) | Untreated | | 13.67 | 2.31 | 1.5 | 15 | 15 | 11 |
| | +(5%) | Solvent | | 9.00 | 2.65 | | 10 | 6 | 11 |
| Positive control with metabolic activation: 12/10/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 33.00 | 2.65 | 3.7 | 36 | 31 | 32 |
| | +(10%) | Untreated | | 15.00 | 1.00 | 1.7 | 14 | 15 | 16 |
| | +(10%) | Solvent | | 9.00 | 2.00 | | 7 | 9 | 11 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 24: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Amyris Farnesane (POSF 10329)

| Test compound without metabolic activation: 10/28/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Amyris | 5.000 | 11.33 | 3.21 | 0.7 | 9 | 10 | 15 |
| | - | Amyris | 2.500 | 14.00 | 1.00 | 0.9 | 15 | 14 | 13 |
| | - | Amyris | 1.250 | 17.00 | 0.00 | 1.1 | 17 | 17 | NA |
| | - | Amyris | 0.625 | 13.67 | 6.11 | 0.9 | 15 | 7 | 19 |
| | - | Amyris | 0.313 | 12.67 | 2.52 | 0.8 | 15 | 13 | 10 |
| | - | Amyris | 0.156 | 11.67 | 4.62 | 0.7 | 9 | 9 | 17 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | Amyris | 5.000 | 15.00 | 4.58 | 0.8 | 10 | 16 | 19 |
| | +(5%) | Amyris | 2.500 | 18.67 | 3.79 | 0.9 | 23 | 16 | 17 |
| | +(5%) | Amyris | 1.250 | 19.00 | 1.73 | 1.0 | 17 | 20 | 20 |
| | +(5%) | Amyris | 0.625 | 22.50 | 2.12 | 1.1 | 24 | 21 | NA |
| | +(5%) | Amyris | 0.313 | 18.67 | 1.15 | 0.9 | 18 | 20 | 18 |
| | +(5%) | Amyris | 0.156 | 21.33 | 2.08 | 1.1 | 19 | 22 | 23 |
| Test compound with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | Amyris | 5.000 | 16.00 | 2.65 | 0.8 | 18 | 17 | 13 |
| | +(10%) | Amyris | 2.500 | 17.00 | 2.83 | 0.9 | NA | 19 | 15 |
| | +(10%) | Amyris | 1.250 | 16.00 | 2.65 | 0.8 | 17 | 18 | 13 |
| | +(10%) | Amyris | 0.625 | 15.00 | 2.00 | 0.8 | 17 | 13 | 15 |
| | +(10%) | Amyris | 0.313 | 18.00 | 6.56 | 0.9 | 19 | 24 | 11 |
| | +(10%) | Amyris | 0.156 | 20.33 | 2.31 | 1.0 | 19 | 23 | 19 |
| Positive control without metabolic activation: 10/28/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 1304.67 | 323.71 | 83.3 | 1640 | 1280 | 994 |
| | - | Untreated | | 20.67 | 2.89 | 13 | 19 | 24 | 19 |
| | - | Solvent | | 15.67 | 0.58 | | 15 | 16 | 16 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 55.67 | 2.52 | 2.8 | 56 | 58 | 53 |
| | +(5%) | Untreated | | 22.67 | 5.03 | 1.1 | 18 | 28 | 22 |
| | +(5%) | Solvent | | 20.00 | 1.00 | | 20 | 19 | 21 |
| Positive control with metabolic activation: 10/28/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 42.33 | 2.31 | 2.2 | 45 | 41 | 41 |
| | +(10%) | Untreated | | 26.00 | 5.20 | 13 | 29 | 29 | 20 |
| | +(10%) | Solvent | | 19.67 | 3.79 | | 24 | 17 | 18 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 25: Individual and mean plate counts for *E. coli* WP2 exposed to Amyris Farnesane (POSF 10329)

| Test compound without metabolic activation: 12/3/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Amyris | 5.000 | 40.00 | 2.00 | 0.8 | 42 | 38 | 40 |
| | - | Amyris | 2.500 | 39.67 | 12.22 | 0.8 | 53 | 37 | 29 |
| | - | Amyris | 1250 | 35.67 | 5.13 | 0.7 | 40 | 37 | 30 |
| | - | Amyris | 0.625 | 39.33 | 3.06 | 0.8 | 42 | 36 | 40 |
| | - | Amyris | 0.313 | 41.00 | 5.57 | 0.9 | 40 | 36 | 47 |
| | - | Amyris | 0.156 | 41.33 | 7.37 | 0.9 | 33 | 44 | 47 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | Amyris | 5.000 | 52.33 | 2.52 | 0.8 | 55 | 50 | 52 |
| | +(5%) | Amyris | 2.500 | 47.67 | 8.08 | 0.7 | 55 | 49 | 39 |
| | +(5%) | Amyris | 1250 | 54.00 | 10.44 | 0.8 | 42 | 61 | 59 |
| | +(5%) | Amyris | 0.625 | 48.67 | 4.04 | 0.8 | 45 | 48 | 53 |
| | +(5%) | Amyris | 0.313 | 53.00 | 4.36 | 0.8 | 51 | 50 | 58 |
| | +(5%) | Amyris | 0.156 | 54.67 | 10.69 | 0.8 | 64 | 57 | 43 |
| Test compound with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | Amyris | 5.000 | 52.00 | 9.64 | 1.0 | 45 | 63 | 48 |
| | +(10%) | Amyris | 2.500 | 49.33 | 8.33 | 1.0 | 52 | 40 | 56 |
| | +(10%) | Amyris | 1250 | 51.00 | 6.08 | 1.0 | 54 | 55 | 44 |
| | +(10%) | Amyris | 0.625 | 47.67 | 7.51 | 0.9 | 55 | 48 | 40 |
| | +(10%) | Amyris | 0.313 | 54.00 | 10.54 | 1.0 | 64 | 43 | 55 |
| | +(10%) | Amyris | 0.156 | 51.33 | 4.93 | 1.0 | 49 | 48 | 57 |
| Positive control without metabolic activation: 12/3/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 181.33 | 12.86 | 24.6 | 1172 | 1176 | 1196 |
| | - | Untreated | | 40.67 | 3.51 | 0.8 | 41 | 37 | 44 |
| | - | Solvent | | 48.00 | 3.61 | | 51 | 49 | 44 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 652.00 | 78.08 | 10.1 | 648 | 576 | 732 |
| | +(5%) | Untreated | | 64.67 | 14.19 | 1.0 | 52 | 80 | 62 |
| | +(5%) | Solvent | | 64.33 | 9.07 | | 56 | 63 | 74 |
| Positive control with metabolic activation: 12/3/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 614.67 | 90.89 | 11.9 | 712 | 600 | 532 |
| | +(10%) | Untreated | | 61.00 | 1.73 | 1.2 | 62 | 59 | 62 |
| | +(10%) | Solvent | | 51.67 | 13.58 | | 66 | 50 | 39 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 26: Individual and mean plate counts for *Salmonella* TA-98 exposed to Virent HDO-SK (POSF 10330)

| Test compound without metabolic activation: 11/8/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | Virent | 2.500 | 23.67 | 3.21 | 0.8 | 25 | 26 | 20 |
| | - | Virent | 1250 | 29.33 | 2.52 | 1.0 | 32 | 27 | 29 |
| | - | Virent | 0.625 | 28.33 | 6.51 | 1.0 | 22 | 28 | 35 |
| | - | Virent | 0.313 | 24.00 | 3.46 | 0.8 | 28 | 22 | 22 |
| | - | Virent | 0.156 | 34.00 | 4.36 | 1.1 | 31 | 32 | 39 |
| | - | Virent | 0.078 | 35.67 | 3.51 | 1.2 | 39 | 36 | 32 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | Virent | 2.500 | 62.33 | 9.07 | 14 | 54 | 61 | 72 |
| | +(5%) | Virent | 1250 | 58.33 | 3.51 | 13 | 58 | 62 | 55 |
| | +(5%) | Virent | 0.625 | 44.50 | 3.54 | 10 | 42 | NA | 47 |
| | +(5%) | Virent | 0.313 | 37.50 | 7.78 | 0.8 | 32 | 43 | NA |
| | +(5%) | Virent | 0.156 | 44.33 | 7.51 | 1.0 | 40 | 53 | 40 |
| | +(5%) | Virent | 0.078 | 52.00 | 4.24 | 1.2 | 55 | 49 | NA |
| Test compound with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | Virent | 2.500 | 36.00 | 5.00 | 0.9 | 36 | 41 | 31 |
| | +(10%) | Virent | 1250 | 42.33 | 6.11 | 1.0 | 41 | 49 | 37 |
| | +(10%) | Virent | 0.625 | 39.00 | 5.00 | 1.0 | 34 | 39 | 44 |
| | +(10%) | Virent | 0.313 | 41.00 | 7.00 | 1.0 | 34 | 41 | 48 |
| | +(10%) | Virent | 0.156 | 34.67 | 8.96 | 0.9 | 45 | 29 | 30 |
| | +(10%) | Virent | 0.078 | 48.67 | 2.52 | 1.2 | 49 | 46 | 51 |
| Positive control without metabolic activation: 11/8/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 258.00 | 12.53 | 8.7 | 259 | 270 | 245 |
| | - | Untreated | | 30.33 | 5.69 | 1.0 | 24 | 35 | 32 |
| | - | Solvent | | 29.67 | 3.51 | | 33 | 26 | 30 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 206.00 | 1.73 | 4.6 | 207 | 207 | 204 |
| | +(5%) | Untreated | | 53.67 | 9.71 | 12 | 43 | 56 | 62 |
| | +(5%) | Solvent | | 44.33 | 8.96 | | 50 | 34 | 49 |
| Positive control with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 130.33 | 0.58 | 3.2 | 130 | 130 | 131 |
| | +(10%) | Untreated | | 47.67 | 7.57 | 12 | 39 | 51 | 53 |
| | +(10%) | Solvent | | 40.33 | 8.96 | | 30 | 45 | 46 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 27: Individual and mean plate counts for *Salmonella* TA-100 exposed to Virent HDO-SK (POSF 10330)

| Test compound without metabolic activation: 11/19/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Virent | 2.500 | 102.33 | 9.09 | 0.7 | 124 | 95 | 88 |
| | - | Virent | 1250 | 120.00 | 11.36 | 0.9 | 112 | 133 | 115 |
| | - | Virent | 0.625 | 111.67 | 19.14 | 0.8 | 94 | 109 | 132 |
| | - | Virent | 0.313 | 130.33 | 8.96 | 0.9 | 120 | 136 | 135 |
| | - | Virent | 0.156 | 150.33 | 8.74 | 1.1 | 143 | 148 | 160 |
| | - | Virent | 0.078 | 155.00 | 8.72 | 1.1 | 165 | 151 | 149 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | Virent | 2.500 | 128.00 | 20.52 | 1.0 | 129 | 148 | 107 |
| | +(5%) | Virent | 1250 | 137.33 | 16.29 | 1.1 | 166 | 126 | 130 |
| | +(5%) | Virent | 0.625 | 117.33 | 3.21 | 0.9 | 116 | 121 | 115 |
| | +(5%) | Virent | 0.313 | 129.00 | 4.58 | 1.0 | 133 | 130 | 124 |
| | +(5%) | Virent | 0.156 | 121.67 | 6.11 | 1.0 | 115 | 127 | 123 |
| | +(5%) | Virent | 0.078 | 140.67 | 14.15 | 1.1 | 167 | 132 | 133 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | Virent | 2.500 | 147.00 | 9.17 | 1.2 | 149 | 165 | 137 |
| | +(10%) | Virent | 1250 | 123.33 | 23.76 | 1.0 | 139 | 96 | 135 |
| | +(10%) | Virent | 0.625 | 130.33 | 14.57 | 1.1 | 144 | 115 | 132 |
| | +(10%) | Virent | 0.313 | 121.67 | 11.50 | 1.0 | 110 | 122 | 133 |
| | +(10%) | Virent | 0.156 | 147.67 | 21.39 | 1.2 | 171 | 143 | 129 |
| | +(10%) | Virent | 0.078 | 141.67 | 12.86 | 1.2 | 127 | 151 | 147 |
| Positive control without metabolic activation: 10/18/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2175.33 | 126.21 | 6.7 | 2138 | 2316 | 2072 |
| | - | Untreated | | 139.67 | 2.31 | 1.0 | 141 | 137 | 141 |
| | - | Solvent | | 138.67 | 9.61 | | 137 | 149 | 130 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 382.67 | 38.81 | 3.0 | 347 | 424 | 377 |
| | +(5%) | Untreated | | 135.67 | 11.59 | 1.1 | 149 | 128 | 130 |
| | +(5%) | Solvent | | 127.67 | 3.51 | | 124 | 128 | 131 |
| Positive control with metabolic activation: 10/18/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 297.00 | 3.46 | 2.5 | 295 | 295 | 301 |
| | +(10%) | Untreated | | 132.67 | 2.31 | 1.1 | 134 | 130 | 134 |
| | +(10%) | Solvent | | 121.00 | 5.66 | | NA | 117 | 125 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 28: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Virent HDO-SK (POSF 10330)

| Test compound without metabolic activation: 10/24/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Virent | 2.500 | 10.67 | 0.58 | 0.9 | 11 | 11 | 10 |
| | - | Virent | 1250 | 7.67 | 2.08 | 0.6 | 6 | 10 | 7 |
| | - | Virent | 0.625 | 8.33 | 1.53 | 0.7 | 7 | 8 | 10 |
| | - | Virent | 0.313 | 11.67 | 4.62 | 1.0 | 9 | 9 | 17 |
| | - | Virent | 0.156 | 9.33 | 4.73 | 0.8 | 4 | 11 | 13 |
| | - | Virent | 0.078 | 14.00 | 8.66 | 1.2 | 24 | 9 | 9 |
| Test compound with metabolic activation: 11/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Virent | 2.500 | 9.00 | 6.08 | 0.6 | 5 | 16 | 6 |
| | +(5%) | Virent | 1250 | 9.67 | 1.53 | 0.6 | 11 | 8 | 10 |
| | +(5%) | Virent | 0.625 | 11.33 | 5.13 | 0.8 | 17 | 10 | 7 |
| | +(5%) | Virent | 0.313 | 12.00 | 4.36 | 0.8 | 14 | 7 | 15 |
| | +(5%) | Virent | 0.156 | 12.00 | 3.00 | 0.8 | 15 | 9 | 12 |
| | +(5%) | Virent | 0.078 | 16.67 | 10.69 | 1.1 | 29 | 11 | 10 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Virent | 2.500 | 11.50 | 0.71 | 0.8 | NA | 12 | 11 |
| | +(10%) | Virent | 1250 | 11.00 | 3.61 | 0.7 | 8 | 15 | 10 |
| | +(10%) | Virent | 0.625 | 14.33 | 3.51 | 0.9 | 14 | 18 | 11 |
| | +(10%) | Virent | 0.313 | 12.33 | 6.11 | 0.8 | 7 | 19 | 11 |
| | +(10%) | Virent | 0.156 | 10.67 | 1.53 | 0.7 | 9 | 12 | 11 |
| | +(10%) | Virent | 0.078 | 12.00 | 1.00 | 0.8 | 12 | 13 | 11 |
| Positive control without metabolic activation: 10/24/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 445.33 | 25.03 | 37.1 | 444 | 421 | 471 |
| | - | Untreated | | 8.00 | 2.65 | 0.7 | 11 | 7 | 6 |
| | - | Solvent | | 12.00 | 2.65 | | 15 | 10 | 11 |
| Positive control with metabolic activation: 11/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 43.67 | 3.21 | 2.9 | 40 | 46 | 45 |
| | +(5%) | Untreated | | 17.67 | 4.04 | 1.2 | 20 | 20 | 13 |
| | +(5%) | Solvent | | 15.00 | 5.57 | | 20 | 16 | 9 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 31.67 | 4.04 | 2.1 | 28 | 36 | 31 |
| | +(10%) | Untreated | | 17.00 | 5.29 | 1.1 | 15 | 13 | 23 |
| | +(10%) | Solvent | | 15.33 | 2.52 | | 18 | 13 | 15 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 29: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Virent HDO-SK (POSF 10330)

| Test compound without metabolic activation: 11/1/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Virent | 2.500 | 10.33 | 3.79 | 0.8 | 12 | 13 | 6 |
| | - | Virent | 1250 | 11.33 | 1.53 | 0.9 | 13 | 11 | 10 |
| | - | Virent | 0.625 | 12.00 | 2.65 | 0.9 | 15 | 10 | 11 |
| | - | Virent | 0.313 | 10.67 | 1.53 | 0.8 | 9 | 11 | 12 |
| | - | Virent | 0.156 | 12.33 | 4.93 | 0.9 | 9 | 18 | 10 |
| | - | Virent | 0.078 | 13.00 | 3.61 | 1.0 | 12 | 17 | 10 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | Virent | 2.500 | 17.33 | 3.51 | 0.8 | 21 | 17 | 14 |
| | +(5%) | Virent | 1250 | 13.50 | 0.71 | 0.6 | 14 | NA | 13 |
| | +(5%) | Virent | 0.625 | 16.00 | 2.83 | 0.7 | 14 | 15 | 18 |
| | +(5%) | Virent | 0.313 | 14.00 | 1.73 | 0.6 | 13 | 13 | 16 |
| | +(5%) | Virent | 0.156 | 18.67 | 0.58 | 0.8 | 19 | 19 | 18 |
| | +(5%) | Virent | 0.078 | 17.67 | 5.03 | 0.8 | 23 | 13 | 17 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | Virent | 2.500 | 21.67 | 2.52 | 1.2 | 24 | 19 | 22 |
| | +(10%) | Virent | 1250 | 16.33 | 1.53 | 0.9 | 18 | 15 | 16 |
| | +(10%) | Virent | 0.625 | 16.67 | 8.74 | 0.9 | 7 | 19 | 24 |
| | +(10%) | Virent | 0.313 | 17.33 | 2.08 | 0.9 | 18 | 19 | 15 |
| | +(10%) | Virent | 0.156 | 18.67 | 3.06 | 1.0 | 16 | 22 | 18 |
| | +(10%) | Virent | 0.078 | 21.00 | 3.00 | 1.1 | 24 | 18 | 21 |
| Positive control without metabolic activation: 11/1/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 929.00 | 126.01 | 715 | 1056 | 927 | 804 |
| | - | Untreated | | 17.33 | 4.62 | 13 | 12 | 20 | 20 |
| | - | Solvent | | 13.00 | 1.73 | | 11 | 14 | 14 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 52.67 | 2.52 | 2.3 | 55 | 50 | 53 |
| | +(5%) | Untreated | | 17.67 | 2.52 | 0.8 | 20 | 18 | 15 |
| | +(5%) | Solvent | | 22.67 | 3.21 | | 19 | 24 | 25 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 33.67 | 2.31 | 18 | 35 | 31 | 35 |
| | +(10%) | Untreated | | 26.67 | 5.03 | 15 | 32 | 22 | 26 |
| | +(10%) | Solvent | | 18.33 | 2.08 | | 16 | 20 | 19 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 30: Individual and mean plate counts for *E. coli* WP2 exposed to Virent HDO-SK (POSF 10330)

| Test compound without metabolic activation: 12/11/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Virent | 2.500 | 36.33 | 2.52 | 0.9 | 36 | 34 | 39 |
| | - | Virent | 1250 | 39.00 | 5.29 | 0.9 | 41 | 33 | 43 |
| | - | Virent | 0.625 | 40.67 | 6.03 | 1.0 | 40 | 47 | 35 |
| | - | Virent | 0.313 | 39.00 | 8.72 | 0.9 | 43 | 45 | 29 |
| | - | Virent | 0.156 | 39.00 | 8.72 | 0.9 | 33 | 49 | 35 |
| | - | Virent | 0.078 | 42.33 | 1.5 | 1.0 | 41 | 43 | 43 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (5%) | Virent | 2.500 | 47.00 | 2.65 | 1.1 | 48 | 49 | 44 |
| | + (5%) | Virent | 1250 | 39.33 | 4.73 | 0.9 | 34 | 43 | 41 |
| | + (5%) | Virent | 0.625 | 56.33 | 4.62 | 1.4 | 59 | 59 | 51 |
| | + (5%) | Virent | 0.313 | 54.00 | 2.65 | 1.3 | 57 | 52 | 53 |
| | + (5%) | Virent | 0.156 | 49.33 | 9.45 | 1.2 | 46 | 42 | 60 |
| | + (5%) | Virent | 0.078 | 42.67 | 2.89 | 1.0 | 46 | 41 | 41 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (10%) | Virent | 2.500 | 44.67 | 6.11 | 1.1 | 46 | 50 | 38 |
| | + (10%) | Virent | 1250 | 42.67 | 0.58 | 1.1 | 43 | 42 | 43 |
| | + (10%) | Virent | 0.625 | 47.33 | 7.02 | 1.2 | 40 | 48 | 54 |
| | + (10%) | Virent | 0.313 | 49.33 | 7.09 | 1.3 | 43 | 48 | 57 |
| | + (10%) | Virent | 0.156 | 47.00 | 8.72 | 1.2 | 43 | 41 | 57 |
| | + (10%) | Virent | 0.078 | 50.67 | 6.43 | 1.3 | 46 | 48 | 58 |
| Positive control without metabolic activation: 12/11/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1025.33 | 123.70 | 24.0 | 960 | 168 | 948 |
| | - | Untreated | | 4133 | 4.73 | 1.0 | 43 | 45 | 36 |
| | - | Solvent | | 42.67 | 4.04 | | 45 | 45 | 38 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (5%) | 2-Anthramine | 20 | 552.67 | 109.57 | 13.3 | 574 | 650 | 434 |
| | + (5%) | Untreated | | 52.33 | 9.71 | 1.3 | 44 | 50 | 63 |
| | + (5%) | Solvent | | 41.67 | 4.16 | | 43 | 37 | 45 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (10%) | 2-Anthramine | 20 | 533.33 | 96.77 | 13.6 | 608 | 424 | 568 |
| | + (10%) | Untreated | | 53.33 | 8.39 | 1.4 | 49 | 48 | 63 |
| | + (10%) | Solvent | | 39.33 | 4.04 | | 44 | 37 | 37 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 31: Individual and mean plate counts for *Salmonella* TA-98 exposed to TS-1 (Specification number 10227-86)

| Test compound without metabolic activation: 11/8/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | TS-1 | 5.000 | 29.67 | 5.03 | 10 | 25 | 29 | 35 |
| | - | TS-1 | 2.500 | 30.67 | 3.79 | 10 | 28 | 29 | 35 |
| | - | TS-1 | 1250 | 28.00 | 2.00 | 0.9 | 28 | 30 | 26 |
| | - | TS-1 | 0.625 | 35.00 | 8.89 | 12 | 28 | 45 | 32 |
| | - | TS-1 | 0.313 | 39.33 | 4.16 | 13 | 36 | 44 | 38 |
| | - | TS-1 | 0.156 | 36.33 | 5.86 | 12 | 34 | 32 | 43 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | TS-1 | 5.000 | 55.33 | 8.50 | 12 | 65 | 49 | 52 |
| | +(5%) | TS-1 | 2.500 | 50.00 | 16.52 | 11 | 69 | 39 | 42 |
| | +(5%) | TS-1 | 1250 | 47.00 | 114 | 11 | 35 | 57 | 49 |
| | +(5%) | TS-1 | 0.625 | 45.00 | 4.24 | 10 | 42 | 48 | NA |
| | +(5%) | TS-1 | 0.313 | 42.67 | 13.32 | 10 | 34 | 36 | 58 |
| | +(5%) | TS-1 | 0.156 | 38.67 | 8.74 | 0.9 | 46 | 41 | 29 |
| Test compound with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | TS-1 | 5.000 | 37.00 | 8.00 | 0.9 | 29 | 45 | 37 |
| | +(10%) | TS-1 | 2.500 | 33.33 | 4.51 | 0.8 | 38 | 29 | 33 |
| | +(10%) | TS-1 | 1250 | 45.00 | 3.00 | 11 | 48 | 42 | 45 |
| | +(10%) | TS-1 | 0.625 | 45.33 | 5.51 | 11 | 48 | 49 | 39 |
| | +(10%) | TS-1 | 0.313 | 46.67 | 5.03 | 12 | 46 | 42 | 52 |
| | +(10%) | TS-1 | 0.156 | 45.00 | 4.00 | 11 | 49 | 41 | 45 |
| Positive control without metabolic activation: 11/8/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 258.00 | 12.53 | 8.7 | 259 | 270 | 245 |
| | - | Untreated | | 30.33 | 5.69 | 10 | 24 | 35 | 32 |
| | - | Solvent | | 29.67 | 3.51 | | 33 | 26 | 30 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 206.00 | 173 | 4.6 | 207 | 207 | 204 |
| | +(5%) | Untreated | | 53.67 | 9.71 | 12 | 43 | 56 | 62 |
| | +(5%) | Solvent | | 44.33 | 8.96 | | 50 | 34 | 49 |
| Positive control with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 130.33 | 0.58 | 3.2 | 130 | 130 | 131 |
| | +(10%) | Untreated | | 47.67 | 7.57 | 12 | 39 | 51 | 53 |
| | +(10%) | Solvent | | 40.33 | 8.96 | | 30 | 45 | 46 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 32: Individual and mean plate counts for *Salmonella* TA-100 exposed to TS-1 (Specification number 10227-86)

| Test compound without metabolic activation: 10/15/2013 | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | - | TS-1 | 5.000 | 113.67 | 18.61 | 0.9 | 116 | 131 |
| | - | TS-1 | 2.500 | 97.00 | 4.58 | 0.8 | 101 | 98 |
| | - | TS-1 | 1250 | 114.33 | 8.50 | 0.9 | 106 | 114 |
| | - | TS-1 | 0.625 | 126.00 | 10.44 | 1.0 | 114 | 133 |
| | - | TS-1 | 0.313 | 128.33 | 7.23 | 1.1 | 120 | 133 |
| | - | TS-1 | 0.156 | 116.67 | 12.06 | 1.0 | 128 | 104 |
| Test compound with metabolic activation: 10/15/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(5%) | TS-1 | 5.000 | 111.00 | 13.00 | 0.8 | 126 | 104 |
| | +(5%) | TS-1 | 2.500 | 110.33 | 8.50 | 0.8 | 102 | 110 |
| | +(5%) | TS-1 | 1250 | 123.33 | 16.56 | 0.9 | 125 | 106 |
| | +(5%) | TS-1 | 0.625 | 126.67 | 7.23 | 1.0 | 123 | 135 |
| | +(5%) | TS-1 | 0.313 | 116.67 | 2.52 | 0.9 | 118 | 113 |
| | +(5%) | TS-1 | 0.156 | 120.67 | 10.79 | 0.9 | 113 | 133 |
| Test compound with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(10%) | TS-1 | 5.000 | 110.67 | 8.74 | 0.9 | 101 | 118 |
| | +(10%) | TS-1 | 2.500 | 108.00 | 4.36 | 0.8 | 110 | 103 |
| | +(10%) | TS-1 | 1250 | 129.33 | 6.43 | 1.0 | 134 | 132 |
| | +(10%) | TS-1 | 0.625 | 114.00 | 12.53 | 0.9 | 126 | 115 |
| | +(10%) | TS-1 | 0.313 | 114.33 | 6.81 | 0.9 | 112 | 109 |
| | +(10%) | TS-1 | 0.156 | 135.33 | 23.76 | 1.0 | 147 | 108 |
| Positive control without metabolic activation: 10/15/2013 | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | - | Sodium Azide | 3 | 1433.00 | 56.31 | 118 | 1402 | 1399 |
| | - | Untreated | | 121.33 | 9.07 | 1.0 | 125 | 111 |
| | - | Solvent | | 121.67 | 8.96 | | 132 | 117 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 579.67 | 17.47 | 4.4 | 599 | 565 |
| | +(5%) | Untreated | | 125.33 | 3.51 | 1.0 | 129 | 125 |
| | +(5%) | Solvent | | 131.67 | 2.08 | | 131 | 130 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 331.50 | 0.71 | 2.6 | 332 | 331 |
| | +(10%) | Untreated | | 137.67 | 7.77 | 1.1 | 144 | 140 |
| | +(10%) | Solvent | | 130.00 | 13.11 | | 132 | 142 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | |

Table 33: Individual and mean plate counts for *Salmonella* TA-1535 exposed to TS-1 (Specification number 10227-86)

| Test compound without metabolic activation: 11/22/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | TS-1 | 5.000 | 12.67 | 4.16 | 12 | 14 | 16 | 8 |
| | - | TS-1 | 2.500 | 16.00 | 4.36 | 15 | 13 | 14 | 21 |
| | - | TS-1 | 1.250 | 16.00 | 4.58 | 15 | 17 | 20 | 11 |
| | - | TS-1 | 0.625 | 12.67 | 8.08 | 12 | 4 | 14 | 20 |
| | - | TS-1 | 0.313 | 13.00 | 4.00 | 13 | 17 | 9 | 13 |
| | - | TS-1 | 0.156 | 10.33 | 1.53 | 10 | 12 | 10 | 9 |
| Test compound with metabolic activation: 11/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | TS-1 | 5.000 | 8.33 | 3.51 | 0.6 | 5 | 12 | 8 |
| | +(5%) | TS-1 | 2.500 | 11.67 | 1.15 | 0.8 | 13 | 11 | 11 |
| | +(5%) | TS-1 | 1.250 | 11.67 | 1.15 | 0.8 | 13 | 11 | 11 |
| | +(5%) | TS-1 | 0.625 | 16.67 | 1.53 | 1.0 | 17 | 16 | 14 |
| | +(5%) | TS-1 | 0.313 | 16.67 | 4.73 | 1.1 | 22 | 15 | 13 |
| | +(5%) | TS-1 | 0.156 | 14.00 | 1.73 | 0.9 | 13 | 16 | 13 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | TS-1 | 5.000 | 13.33 | 3.21 | 0.9 | 12 | 17 | 11 |
| | +(10%) | TS-1 | 2.500 | 10.00 | 2.83 | 0.7 | 12 | NA | 8 |
| | +(10%) | TS-1 | 1.250 | 14.00 | 3.61 | 0.9 | 10 | 15 | 17 |
| | +(10%) | TS-1 | 0.625 | 9.67 | 4.73 | 0.6 | 8 | 6 | 15 |
| | +(10%) | TS-1 | 0.313 | 13.67 | 5.13 | 0.9 | 15 | 8 | 18 |
| | +(10%) | TS-1 | 0.156 | 12.33 | 2.52 | 0.8 | 10 | 15 | 12 |
| Positive control without metabolic activation: 11/22/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 564.00 | 32.19 | 54.6 | 560 | 534 | 598 |
| | - | Untreated | | 14.33 | 5.13 | 14 | 13 | 20 | 10 |
| | - | Solvent | | 10.33 | 4.04 | | 14 | 11 | 6 |
| Positive control with metabolic activation: 11/22/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 43.67 | 3.21 | 2.9 | 40 | 46 | 45 |
| | +(5%) | Untreated | | 17.67 | 4.04 | 12 | 20 | 20 | 13 |
| | +(5%) | Solvent | | 15.00 | 5.57 | | 20 | 16 | 9 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 31.67 | 4.04 | 2.1 | 28 | 36 | 31 |
| | +(10%) | Untreated | | 17.00 | 5.29 | 1.1 | 15 | 13 | 23 |
| | +(10%) | Solvent | | 15.33 | 2.52 | | 18 | 13 | 15 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 34: Individual and mean plate counts for *Salmonella* TA-1537 exposed to TS-1 (Specification number 10227-86)

| Test compound without metabolic activation: 11/1/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | TS-1 | 5.000 | 15.00 | 1.73 | 12 | 16 | 16 | 13 |
| | - | TS-1 | 2.500 | 15.33 | 3.21 | 12 | 14 | 19 | 13 |
| | - | TS-1 | 1250 | 11.33 | 4.04 | 0.9 | 12 | 7 | 15 |
| | - | TS-1 | 0.625 | 15.00 | 1.00 | 12 | 15 | 14 | 16 |
| | - | TS-1 | 0.313 | 13.00 | 0.00 | 10 | 13 | 13 | 13 |
| | - | TS-1 | 0.156 | 12.67 | 3.06 | 10 | 12 | 16 | 10 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (5%) | TS-1 | 5.000 | 16.33 | 2.52 | 0.7 | 14 | 16 | 19 |
| | + (5%) | TS-1 | 2.500 | 17.33 | 3.51 | 0.8 | 14 | 17 | 21 |
| | + (5%) | TS-1 | 1250 | 17.67 | 4.62 | 0.8 | 23 | 15 | 15 |
| | + (5%) | TS-1 | 0.625 | 20.00 | 4.36 | 0.9 | 17 | 18 | 25 |
| | + (5%) | TS-1 | 0.313 | 23.00 | 3.61 | 1.0 | 19 | 26 | 24 |
| | + (5%) | TS-1 | 0.156 | 16.33 | 5.51 | 0.7 | 11 | 16 | 22 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (10%) | TS-1 | 5.000 | 20.67 | 2.52 | 1.1 | 21 | 18 | 23 |
| | + (10%) | TS-1 | 2.500 | 15.67 | 3.51 | 0.9 | 19 | 16 | 12 |
| | + (10%) | TS-1 | 1250 | 17.00 | 3.46 | 0.9 | 15 | 21 | 15 |
| | + (10%) | TS-1 | 0.625 | 22.67 | 4.51 | 1.2 | 18 | 23 | 27 |
| | + (10%) | TS-1 | 0.313 | 19.33 | 3.06 | 1.1 | 16 | 22 | 20 |
| | + (10%) | TS-1 | 0.156 | 15.33 | 2.52 | 0.8 | 13 | 15 | 18 |
| Positive control without metabolic activation: 11/1/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 929.00 | 126.01 | 715 | 1056 | 927 | 804 |
| | - | Untreated | | 17.33 | 4.62 | 13 | 12 | 20 | 20 |
| | - | Solvent | | 13.00 | 1.73 | | 11 | 14 | 14 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (5%) | 2-Anthramine | 3 | 52.67 | 2.52 | 2.3 | 55 | 50 | 53 |
| | + (5%) | Untreated | | 17.67 | 2.52 | 0.8 | 20 | 18 | 15 |
| | + (5%) | Solvent | | 22.67 | 3.21 | | 19 | 24 | 25 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | + (10%) | 2-Anthramine | 3 | 33.67 | 2.31 | 18 | 35 | 31 | 35 |
| | + (10%) | Untreated | | 26.67 | 5.03 | 15 | 32 | 22 | 26 |
| | + (10%) | Solvent | | 18.33 | 2.08 | | 16 | 20 | 19 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 35: Individual and mean plate counts for *E. coli* WP2 exposed to TS-1 (Specification number 10227-86)

| Test compound without metabolic activation: 12/11/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | TS-1 | 5.000 | 39.67 | 7.02 | 0.9 | 39 | 33 | 47 |
| | - | TS-1 | 2.500 | 47.00 | 13.45 | 1.1 | 36 | 62 | 43 |
| | - | TS-1 | 1.250 | 35.67 | 4.16 | 0.8 | 31 | 37 | 39 |
| | - | TS-1 | 0.625 | 45.67 | 153 | 1.1 | 47 | 44 | 46 |
| | - | TS-1 | 0.313 | 39.33 | 3.06 | 0.9 | 40 | 36 | 42 |
| | - | TS-1 | 0.156 | 43.33 | 4.04 | 1.0 | 41 | 48 | 41 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (5%) | TS-1 | 5.000 | 49.67 | 4.51 | 1.2 | 50 | 54 | 45 |
| | + (5%) | TS-1 | 2.500 | 42.00 | 5.20 | 1.0 | 39 | 48 | 39 |
| | + (5%) | TS-1 | 1.250 | 60.00 | 1.73 | 1.4 | 61 | 61 | 58 |
| | + (5%) | TS-1 | 0.625 | 58.67 | 3.21 | 1.4 | 61 | 55 | 60 |
| | + (5%) | TS-1 | 0.313 | 58.00 | 7.21 | 1.4 | 52 | 66 | 56 |
| | + (5%) | TS-1 | 0.156 | 45.67 | 6.35 | 1.1 | 42 | 42 | 53 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (10%) | TS-1 | 5.000 | 43.33 | 6.03 | 1.1 | 37 | 49 | 44 |
| | + (10%) | TS-1 | 2.500 | 42.33 | 2.52 | 1.1 | 45 | 40 | 42 |
| | + (10%) | TS-1 | 1.250 | 56.00 | 1153 | 1.4 | 65 | 60 | 43 |
| | + (10%) | TS-1 | 0.625 | 36.00 | 2163 | 0.9 | 30 | 18 | 60 |
| | + (10%) | TS-1 | 0.313 | 47.33 | 4.93 | 1.2 | 53 | 45 | 44 |
| | + (10%) | TS-1 | 0.156 | 37.67 | 8.08 | 1.0 | 39 | 29 | 45 |
| Positive control without metabolic activation: 12/11/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1025.33 | 123.70 | 24.0 | 960 | 1168 | 948 |
| | - | Untreated | | 4133 | 4.73 | 10 | 43 | 45 | 36 |
| | - | Solvent | | 42.67 | 4.04 | | 45 | 45 | 38 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (5%) | 2-Anthramine | 20 | 552.67 | 109.57 | 13.3 | 574 | 650 | 434 |
| | + (5%) | Untreated | | 52.33 | 9.71 | 13 | 44 | 50 | 63 |
| | + (5%) | Solvent | | 4167 | 4.16 | | 43 | 37 | 45 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | + (10%) | 2-Anthramine | 20 | 533.33 | 96.77 | 13.6 | 608 | 424 | 568 |
| | + (10%) | Untreated | | 53.33 | 8.39 | 14 | 49 | 48 | 63 |
| | + (10%) | Solvent | | 39.33 | 4.04 | | 44 | 37 | 37 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 36: Individual and mean plate counts for *Salmonella* TA-98 exposed to Gevo 7695 with JP8 additives (POSF 7699)

| Test compound without metabolic activation: 11/8/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | Gevo 7699 | 5.000 | 34.00 | 6.00 | 1.1 | 28 | 34 | 40 |
| | - | Gevo 7699 | 2.500 | 27.33 | 5.13 | 0.9 | 23 | 26 | 33 |
| | - | Gevo 7699 | 1250 | 29.00 | 8.19 | 1.0 | 36 | 31 | 20 |
| | - | Gevo 7699 | 0.625 | 32.33 | 3.06 | 1.1 | 29 | 33 | 35 |
| | - | Gevo 7699 | 0.313 | 27.00 | 3.61 | 0.9 | 30 | 23 | 28 |
| | - | Gevo 7699 | 0.156 | 24.67 | 2.31 | 0.8 | 22 | 26 | 26 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | Gevo 7699 | 5.000 | 49.67 | 13.87 | 1.1 | 65 | 46 | 38 |
| | +(5%) | Gevo 7699 | 2.500 | 37.33 | 4.73 | 0.8 | 39 | 32 | 41 |
| | +(5%) | Gevo 7699 | 1250 | 42.00 | 3.00 | 0.9 | 42 | 39 | 45 |
| | +(5%) | Gevo 7699 | 0.625 | 38.67 | 2.89 | 0.9 | 42 | 37 | 37 |
| | +(5%) | Gevo 7699 | 0.313 | 41.67 | 9.29 | 0.9 | 48 | 46 | 31 |
| | +(5%) | Gevo 7699 | 0.156 | 39.33 | 1.53 | 0.9 | 39 | 41 | 38 |
| Test compound with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | Gevo 7699 | 5.000 | 45.33 | 2.31 | 1.1 | 44 | 44 | 48 |
| | +(10%) | Gevo 7699 | 2.500 | 39.33 | 5.51 | 1.0 | 39 | 34 | 45 |
| | +(10%) | Gevo 7699 | 1250 | 50.00 | 11.79 | 1.2 | 37 | 53 | 60 |
| | +(10%) | Gevo 7699 | 0.625 | 36.33 | 6.51 | 0.9 | 43 | 36 | 30 |
| | +(10%) | Gevo 7699 | 0.313 | 45.33 | 4.73 | 1.1 | 47 | 40 | 49 |
| | +(10%) | Gevo 7699 | 0.156 | 47.00 | 9.17 | 1.2 | 37 | 55 | 49 |
| Positive control without metabolic activation: 11/8/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 258.00 | 12.53 | 8.7 | 259 | 270 | 245 |
| | - | Untreated | | 30.33 | 5.69 | 1.0 | 24 | 35 | 32 |
| | - | Solvent | | 29.67 | 3.51 | | 33 | 26 | 30 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 206.00 | 1.73 | 4.6 | 207 | 207 | 204 |
| | +(5%) | Untreated | | 53.67 | 9.71 | 1.2 | 43 | 56 | 62 |
| | +(5%) | Solvent | | 44.33 | 8.96 | | 50 | 34 | 49 |
| Positive control with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 130.33 | 0.58 | 3.2 | 130 | 130 | 131 |
| | +(10%) | Untreated | | 47.67 | 7.57 | 1.2 | 39 | 51 | 53 |
| | +(10%) | Solvent | | 40.33 | 8.96 | | 30 | 45 | 46 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 37: Individual and mean plate counts for *Salmonella* TA-100 exposed to Gevo 7695 with JP8 additives (POSF 7699)

| Test compound without metabolic activation: 10/15/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Gevo 7699 | 5.000 | 109.67 | 8.74 | 0.9 | 112 | 117 | 100 |
| | - | Gevo 7699 | 2.500 | 120.67 | 8.62 | 1.0 | 130 | 113 | 119 |
| | - | Gevo 7699 | 1.250 | 109.33 | 8.08 | 0.9 | 118 | 108 | 102 |
| | - | Gevo 7699 | 0.625 | 117.00 | 11.00 | 1.0 | 117 | 128 | 106 |
| | - | Gevo 7699 | 0.313 | 133.00 | 10.58 | 1.1 | 137 | 121 | 141 |
| | - | Gevo 7699 | 0.156 | 138.00 | 10.58 | 1.1 | 134 | 130 | 150 |
| Test compound with metabolic activation: 10/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | Gevo 7699 | 5.000 | 97.00 | 12.73 | 0.7 | 88 | NA | 106 |
| | +(5%) | Gevo 7699 | 2.500 | 132.33 | 7.57 | 1.0 | 141 | 129 | 127 |
| | +(5%) | Gevo 7699 | 1.250 | 125.50 | 10.61 | 1.0 | 118 | 133 | NA |
| | +(5%) | Gevo 7699 | 0.625 | 126.67 | 15.01 | 1.0 | 142 | 112 | 126 |
| | +(5%) | Gevo 7699 | 0.313 | 118.33 | 10.02 | 0.9 | 126 | 107 | 122 |
| | +(5%) | Gevo 7699 | 0.156 | 131.50 | 0.71 | 1.0 | 132 | 131 | NA |
| Test compound with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | Gevo 7699 | 5.000 | 119.67 | 6.43 | 0.9 | 117 | 115 | 127 |
| | +(10%) | Gevo 7699 | 2.500 | 133.33 | 22.37 | 1.0 | 118 | 123 | 159 |
| | +(10%) | Gevo 7699 | 1.250 | 127.00 | 11.27 | 1.0 | 120 | 140 | 121 |
| | +(10%) | Gevo 7699 | 0.625 | 129.00 | 10.39 | 1.0 | 135 | 135 | 117 |
| | +(10%) | Gevo 7699 | 0.313 | 124.50 | 0.71 | 1.0 | 124 | 125 | NA |
| | +(10%) | Gevo 7699 | 0.156 | 125.67 | 3.51 | 1.0 | 126 | 129 | 122 |
| Positive control without metabolic activation: 10/15/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 1433.00 | 56.31 | 118 | 1402 | 1498 | 1399 |
| | - | Untreated | | 121.33 | 9.07 | 1.0 | 125 | 128 | 111 |
| | - | Solvent | | 121.67 | 8.96 | | 132 | 116 | 117 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 579.67 | 17.47 | 4.4 | 599 | 575 | 565 |
| | +(5%) | Untreated | | 125.33 | 3.51 | 1.0 | 129 | 122 | 125 |
| | +(5%) | Solvent | | 131.67 | 2.08 | | 131 | 134 | 130 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 331.50 | 0.71 | 2.6 | 332 | NA | 331 |
| | +(10%) | Untreated | | 137.67 | 7.77 | 1.1 | 144 | 129 | 140 |
| | +(10%) | Solvent | | 130.00 | 13.11 | | 132 | 116 | 142 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 38: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Gevo 7695 with JP8 additives (POSF 7699)

| Test compound without metabolic activation: 10/24/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Gevo 7699 | 5.000 | 10.00 | 5.29 | 0.8 | 14 | 4 | 12 |
| | - | Gevo 7699 | 2.500 | 11.00 | 1.73 | 0.9 | 10 | 10 | 13 |
| | - | Gevo 7699 | 1250 | 1167 | 1.53 | 1.0 | 12 | 13 | 10 |
| | - | Gevo 7699 | 0.625 | 8.33 | 2.52 | 0.7 | 6 | 8 | 11 |
| | - | Gevo 7699 | 0.313 | 8.67 | 1.53 | 0.7 | 10 | 7 | 9 |
| | - | Gevo 7699 | 0.156 | 13.67 | 4.93 | 1.1 | 8 | 16 | 17 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Gevo 7699 | 5.000 | 9.00 | 1.00 | 0.6 | 9 | 8 | 10 |
| | +(5%) | Gevo 7699 | 2.500 | 9.00 | 4.36 | 0.6 | 4 | 12 | 11 |
| | +(5%) | Gevo 7699 | 1250 | 14.33 | 4.93 | 1.0 | 12 | 20 | 11 |
| | +(5%) | Gevo 7699 | 0.625 | 14.00 | 5.29 | 1.0 | 20 | 10 | 12 |
| | +(5%) | Gevo 7699 | 0.313 | 9.00 | 2.65 | 0.6 | 11 | 10 | 6 |
| | +(5%) | Gevo 7699 | 0.156 | 9.33 | 6.51 | 0.7 | 16 | 9 | 3 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Gevo 7699 | 5.000 | 10.33 | 4.04 | 0.7 | 6 | 14 | 11 |
| | +(10%) | Gevo 7699 | 2.500 | 9.67 | 0.58 | 0.6 | 10 | 10 | 9 |
| | +(10%) | Gevo 7699 | 1250 | 17.33 | 2.52 | 1.1 | 17 | 15 | 20 |
| | +(10%) | Gevo 7699 | 0.625 | 13.67 | 8.33 | 0.9 | 23 | 7 | 11 |
| | +(10%) | Gevo 7699 | 0.313 | 13.00 | 4.00 | 0.8 | 9 | 17 | 13 |
| | +(10%) | Gevo 7699 | 0.156 | 13.00 | 4.58 | 0.8 | 12 | 9 | 18 |
| Positive control without metabolic activation: 10/24/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 445.33 | 25.03 | 37.1 | 444 | 421 | 471 |
| | - | Untreated | | 8.00 | 2.65 | 0.7 | 11 | 7 | 6 |
| | - | Solvent | | 12.00 | 2.65 | | 15 | 10 | 11 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 30.67 | 5.13 | 2.1 | 35 | 32 | 25 |
| | +(5%) | Untreated | | 12.00 | 3.00 | 0.8 | 12 | 15 | 9 |
| | +(5%) | Solvent | | 14.33 | 5.13 | | 10 | 13 | 20 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 31.67 | 4.04 | 2.1 | 28 | 36 | 31 |
| | +(10%) | Untreated | | 17.00 | 5.29 | 1.1 | 15 | 13 | 23 |
| | +(10%) | Solvent | | 15.33 | 2.52 | | 18 | 13 | 15 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 39: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Gevo 7695 with JP8 additives (POSF 7699)

| Test compound without metabolic activation: 11/1/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Gevo 7699 | 5.000 | 13.67 | 2.08 | 1.1 | 12 | 16 | 13 |
| | - | Gevo 7699 | 2.500 | 16.33 | 3.51 | 1.3 | 13 | 20 | 16 |
| | - | Gevo 7699 | 1.250 | 13.67 | 4.51 | 1.1 | 9 | 14 | 18 |
| | - | Gevo 7699 | 0.625 | 16.33 | 2.08 | 1.3 | 14 | 18 | 17 |
| | - | Gevo 7699 | 0.313 | 15.00 | 2.00 | 1.2 | 17 | 15 | 13 |
| | - | Gevo 7699 | 0.156 | 16.33 | 3.21 | 1.3 | 20 | 15 | 14 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | Gevo 7699 | 5.000 | 20.00 | 9.54 | 0.9 | 21 | 10 | 29 |
| | +(5%) | Gevo 7699 | 2.500 | 17.33 | 1.15 | 0.8 | 16 | 18 | 18 |
| | +(5%) | Gevo 7699 | 1.250 | 19.00 | 4.58 | 0.8 | 18 | 15 | 24 |
| | +(5%) | Gevo 7699 | 0.625 | 20.67 | 2.08 | 0.9 | 23 | 20 | 19 |
| | +(5%) | Gevo 7699 | 0.313 | 23.00 | 2.65 | 1.0 | 21 | 22 | 26 |
| | +(5%) | Gevo 7699 | 0.156 | 20.00 | 2.83 | 0.9 | NA | 22 | 18 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | Gevo 7699 | 5.000 | 24.67 | 10.97 | 1.3 | 37 | 21 | 16 |
| | +(10%) | Gevo 7699 | 2.500 | 16.33 | 6.66 | 0.9 | 22 | 9 | 18 |
| | +(10%) | Gevo 7699 | 1.250 | 16.50 | 9.19 | 0.9 | 10 | 23 | NA |
| | +(10%) | Gevo 7699 | 0.625 | 15.67 | 4.04 | 0.9 | 20 | 15 | 12 |
| | +(10%) | Gevo 7699 | 0.313 | 26.67 | 3.21 | 1.5 | 29 | 23 | 28 |
| | +(10%) | Gevo 7699 | 0.156 | 16.00 | 4.58 | 0.9 | 21 | 15 | 12 |
| Positive control without metabolic activation: 11/1/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 929.00 | 126.01 | 715 | 1056 | 927 | 804 |
| | - | Untreated | | 17.33 | 4.62 | 1.3 | 12 | 20 | 20 |
| | - | Solvent | | 13.00 | 1.73 | | 11 | 14 | 14 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 52.67 | 2.52 | 2.3 | 55 | 50 | 53 |
| | +(5%) | Untreated | | 17.67 | 2.52 | 0.8 | 20 | 18 | 15 |
| | +(5%) | Solvent | | 22.67 | 3.21 | | 19 | 24 | 25 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 33.67 | 2.31 | 18 | 35 | 31 | 35 |
| | +(10%) | Untreated | | 26.67 | 5.03 | 15 | 32 | 22 | 26 |
| | +(10%) | Solvent | | 18.33 | 2.08 | | 16 | 20 | 19 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 40: Individual and mean plate counts for *E. coli* WP2 exposed to Gevo 7695 with JP8 additives (POSF 7699)

| Test compound without metabolic activation: 11/12013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Gevo 7699 | 5.000 | 38.67 | 153 | 0.9 | 37 | 39 | 40 |
| | - | Gevo 7699 | 2.500 | 4133 | 6.03 | 10 | 47 | 42 | 35 |
| | - | Gevo 7699 | 1250 | 39.00 | 5.57 | 0.9 | 38 | 34 | 45 |
| | - | Gevo 7699 | 0.625 | 4100 | 3.61 | 10 | 38 | 40 | 45 |
| | - | Gevo 7699 | 0.313 | 35.67 | 4.93 | 0.8 | 30 | 38 | 39 |
| | - | Gevo 7699 | 0.156 | 33.33 | 8.14 | 0.8 | 24 | 39 | 37 |
| Test compound with metabolic activation: 11/12013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | Gevo 7699 | 5.000 | 52.33 | 5.03 | 13 | 47 | 57 | 53 |
| | +(5%) | Gevo 7699 | 2.500 | 49.33 | 8.74 | 12 | 42 | 59 | 47 |
| | +(5%) | Gevo 7699 | 1250 | 54.00 | 5.57 | 13 | 53 | 60 | 49 |
| | +(5%) | Gevo 7699 | 0.625 | 50.00 | 13.00 | 12 | 50 | 37 | 63 |
| | +(5%) | Gevo 7699 | 0.313 | 46.33 | 4.93 | 11 | 52 | 44 | 43 |
| | +(5%) | Gevo 7699 | 0.156 | 49.33 | 10.26 | 12 | 38 | 52 | 58 |
| Test compound with metabolic activation: 11/12013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | Gevo 7699 | 5.000 | 5133 | 13.32 | 13 | 58 | 60 | 36 |
| | +(10%) | Gevo 7699 | 2.500 | 4100 | 4.58 | 10 | 42 | 45 | 36 |
| | +(10%) | Gevo 7699 | 1250 | 52.00 | 8.72 | 13 | 56 | 58 | 42 |
| | +(10%) | Gevo 7699 | 0.625 | 49.67 | 10.02 | 13 | 40 | 60 | 49 |
| | +(10%) | Gevo 7699 | 0.313 | 48.67 | 4.16 | 12 | 50 | 44 | 52 |
| | +(10%) | Gevo 7699 | 0.156 | 46.33 | 0.58 | 12 | 46 | 46 | 47 |
| Positive control without metabolic activation: 11/12013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1025.33 | 123.70 | 24.0 | 960 | 168 | 948 |
| | - | Untreated | | 4133 | 4.73 | 10 | 43 | 45 | 36 |
| | - | Solvent | | 42.67 | 4.04 | | 45 | 45 | 38 |
| Positive control with metabolic activation: 11/12013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 552.67 | 109.57 | 13.3 | 574 | 650 | 434 |
| | +(5%) | Untreated | | 52.33 | 9.71 | 13 | 44 | 50 | 63 |
| | +(5%) | Solvent | | 41.67 | 4.16 | | 43 | 37 | 45 |
| Positive control with metabolic activation: 11/12013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 533.33 | 96.77 | 13.6 | 608 | 424 | 568 |
| | +(10%) | Untreated | | 53.33 | 8.39 | 14 | 49 | 48 | 63 |
| | +(10%) | Solvent | | 39.33 | 4.04 | | 44 | 37 | 37 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 41: Individual and mean plate counts for *Salmonella* TA-98 exposed to Gevo 10262 with JP8 additives (POSF 10263)

| Test compound without metabolic activation: 11/8/2013 | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | - | Gevo 10263 | 5.000 | 30.33 | 1.53 | 10 | 32 29 30 |
| | - | Gevo 10263 | 2.500 | 29.67 | 3.51 | 10 | 33 30 26 |
| | - | Gevo 10263 | 1250 | 29.00 | 6.93 | 10 | 21 33 33 |
| | - | Gevo 10263 | 0.625 | 28.67 | 2.52 | 10 | 31 29 26 |
| | - | Gevo 10263 | 0.313 | 34.00 | 5.57 | 11 | 29 33 40 |
| | - | Gevo 10263 | 0.156 | 31.00 | 3.46 | 10 | 33 27 33 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | +(5%) | Gevo 10263 | 5.000 | 35.67 | 8.08 | 0.8 | 27 37 43 |
| | +(5%) | Gevo 10263 | 2.500 | 43.33 | 4.73 | 10 | 45 47 38 |
| | +(5%) | Gevo 10263 | 1250 | 48.67 | 3.79 | 11 | 53 47 46 |
| | +(5%) | Gevo 10263 | 0.625 | 40.67 | 6.11 | 0.9 | 46 34 42 |
| | +(5%) | Gevo 10263 | 0.313 | 47.33 | 4.93 | 11 | 53 45 44 |
| | +(5%) | Gevo 10263 | 0.156 | 53.00 | 3.61 | 12 | 50 52 57 |
| Test compound with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | +(10%) | Gevo 10263 | 5.000 | 38.00 | 4.36 | 0.9 | 36 43 35 |
| | +(10%) | Gevo 10263 | 2.500 | 42.33 | 9.50 | 10 | 42 52 33 |
| | +(10%) | Gevo 10263 | 1250 | 44.33 | 5.13 | 11 | 40 50 43 |
| | +(10%) | Gevo 10263 | 0.625 | 39.00 | 9.90 | 10 | 46 32 NA |
| | +(10%) | Gevo 10263 | 0.313 | 40.50 | 7.78 | 10 | 35 NA 46 |
| | +(10%) | Gevo 10263 | 0.156 | 33.33 | 1.53 | 0.8 | 32 33 35 |
| Positive control without metabolic activation: 11/8/2013 | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | - | 2-Nitrofluorene | 3 | 258.00 | 12.53 | 8.7 | 259 270 245 |
| | - | Untreated | | 30.33 | 5.69 | 10 | 24 35 32 |
| | - | Solvent | | 29.67 | 3.51 | | 33 26 30 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 206.00 | 1.73 | 4.6 | 207 207 204 |
| | +(5%) | Untreated | | 53.67 | 9.71 | 12 | 43 56 62 |
| | +(5%) | Solvent | | 44.33 | 8.96 | | 50 34 49 |
| Positive control with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 130.33 | 0.58 | 3.2 | 130 130 131 |
| | +(10%) | Untreated | | 47.67 | 7.57 | 12 | 39 51 53 |
| | +(10%) | Solvent | | 40.33 | 8.96 | | 30 45 46 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 42: Individual and mean plate counts for *Salmonella* TA-100 exposed to Gevo 10262 with JP8 additives (POSF 10263)

| Test compound without metabolic activation: 11/19/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Gevo 10263 | 5.000 | 109.67 | 8.39 | 0.8 | 115 | 100 | 114 |
| | - | Gevo 10263 | 2.500 | 119.67 | 7.37 | 0.9 | 117 | 128 | 114 |
| | - | Gevo 10263 | 1250 | 116.67 | 8.08 | 0.8 | 108 | 118 | 124 |
| | - | Gevo 10263 | 0.625 | 133.67 | 18.34 | 1.0 | 148 | 113 | 140 |
| | - | Gevo 10263 | 0.313 | 123.00 | 7.55 | 0.9 | 131 | 122 | 116 |
| | - | Gevo 10263 | 0.156 | 123.00 | 6.56 | 0.9 | 122 | 117 | 130 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | Gevo 10263 | 5.000 | 99.33 | 4.04 | 0.8 | 97 | 104 | 97 |
| | +(5%) | Gevo 10263 | 2.500 | 123.33 | 6.11 | 1.0 | 122 | 118 | 130 |
| | +(5%) | Gevo 10263 | 1250 | 127.00 | 7.00 | 1.0 | 130 | 119 | 132 |
| | +(5%) | Gevo 10263 | 0.625 | 127.00 | 141 | 1.0 | 128 | 126 | NA |
| | +(5%) | Gevo 10263 | 0.313 | 125.00 | 13.00 | 1.0 | 132 | 133 | 110 |
| | +(5%) | Gevo 10263 | 0.156 | 124.00 | 10.82 | 1.0 | 133 | 112 | 127 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | Gevo 10263 | 5.000 | 126.67 | 7.51 | 1.0 | 127 | 134 | 119 |
| | +(10%) | Gevo 10263 | 2.500 | 123.67 | 15.31 | 1.0 | 118 | 112 | 141 |
| | +(10%) | Gevo 10263 | 1250 | 143.00 | 6.24 | 1.2 | 145 | 148 | 136 |
| | +(10%) | Gevo 10263 | 0.625 | 134.00 | 11.53 | 1.1 | 147 | 130 | 125 |
| | +(10%) | Gevo 10263 | 0.313 | 124.67 | 4.04 | 1.0 | 127 | 127 | 120 |
| | +(10%) | Gevo 10263 | 0.156 | 132.00 | 8.72 | 1.1 | 136 | 138 | 122 |
| Positive control without metabolic activation: 11/19/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | - | Sodium Azide | 3 | 2175.33 | 126.21 | 15.7 | 2138 | 2316 | 2072 |
| | - | Untreated | | 139.67 | 2.31 | 1.0 | 141 | 137 | 141 |
| | - | Solvent | | 138.67 | 9.61 | | 137 | 149 | 130 |
| Positive control with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 382.67 | 38.81 | 3.0 | 347 | 424 | 377 |
| | +(5%) | Untreated | | 135.67 | 11.59 | 1.1 | 149 | 128 | 130 |
| | +(5%) | Solvent | | 127.67 | 3.51 | | 124 | 128 | 131 |
| Positive control with metabolic activation: 11/19/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 297.00 | 3.46 | 2.5 | 295 | 295 | 301 |
| | +(10%) | Untreated | | 132.67 | 2.31 | 1.1 | 134 | 130 | 134 |
| | +(10%) | Solvent | | 121.00 | 5.66 | | NA | 117 | 125 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 43: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Gevo 10262 with JP8 additives (POSF 10263)

| Test compound without metabolic activation: 10/24/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Gevo 10263 | 5.000 | 15.33 | 4.51 | 13 | 11 | 20 | 15 |
| | - | Gevo 10263 | 2.500 | 16.00 | 3.61 | 13 | 13 | 20 | 15 |
| | - | Gevo 10263 | 1.250 | 11.33 | 3.51 | 0.9 | 8 | 15 | 11 |
| | - | Gevo 10263 | 0.625 | 11.67 | 2.31 | 1.0 | 9 | 13 | 13 |
| | - | Gevo 10263 | 0.313 | 12.67 | 1.15 | 1.1 | 12 | 14 | 12 |
| | - | Gevo 10263 | 0.156 | 11.00 | 1.00 | 0.9 | 12 | 11 | 10 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | Gevo 10263 | 5.000 | 13.00 | 3.00 | 0.9 | 13 | 10 | 16 |
| | +(5%) | Gevo 10263 | 2.500 | 16.67 | 4.04 | 1.2 | 16 | 21 | 13 |
| | +(5%) | Gevo 10263 | 1.250 | 17.00 | 2.83 | 1.2 | NA | 19 | 15 |
| | +(5%) | Gevo 10263 | 0.625 | 15.00 | 1.00 | 1.0 | 15 | 14 | 16 |
| | +(5%) | Gevo 10263 | 0.313 | 16.33 | 1.53 | 1.1 | 15 | 18 | 16 |
| | +(5%) | Gevo 10263 | 0.156 | 11.50 | 2.12 | 0.8 | 13 | 10 | NA |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | Gevo 10263 | 5.000 | 14.67 | 1.15 | 1.0 | 14 | 16 | 14 |
| | +(10%) | Gevo 10263 | 2.500 | 15.67 | 1.53 | 1.0 | 14 | 16 | 17 |
| | +(10%) | Gevo 10263 | 1.250 | 11.00 | 2.65 | 0.7 | 13 | 8 | 12 |
| | +(10%) | Gevo 10263 | 0.625 | 14.67 | 4.16 | 1.0 | 16 | 18 | 10 |
| | +(10%) | Gevo 10263 | 0.313 | 12.00 | 4.00 | 0.8 | 8 | 12 | 16 |
| | +(10%) | Gevo 10263 | 0.156 | 10.33 | 2.08 | 0.7 | 8 | 11 | 12 |
| Positive control without metabolic activation: 10/24/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 445.33 | 25.03 | 37.1 | 444 | 421 | 471 |
| | - | Untreated | | 8.00 | 2.65 | 0.7 | 11 | 7 | 6 |
| | - | Solvent | | 12.00 | 2.65 | | 15 | 10 | 11 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 30.67 | 5.13 | 2.1 | 35 | 32 | 25 |
| | +(5%) | Untreated | | 12.00 | 3.00 | 0.8 | 12 | 15 | 9 |
| | +(5%) | Solvent | | 14.33 | 5.13 | | 10 | 13 | 20 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 31.67 | 4.04 | 2.1 | 28 | 36 | 31 |
| | +(10%) | Untreated | | 17.00 | 5.29 | 1.1 | 15 | 13 | 23 |
| | +(10%) | Solvent | | 15.33 | 2.52 | | 18 | 13 | 15 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 44: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Gevo 10262 with JP8 additives (POSF 10263)

| Test compound without metabolic activation: 11/1/2013 | | | | | | | | | |
|---|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | Gevo 10263 | 5.000 | 15.67 | 7.02 | 12 | 15 | 23 | 9 |
| | - | Gevo 10263 | 2.500 | 16.67 | 153 | 13 | 17 | 15 | 18 |
| | - | Gevo 10263 | 1250 | 14.67 | 0.58 | 11 | 15 | 15 | 14 |
| | - | Gevo 10263 | 0.625 | 13.00 | 2.65 | 10 | 11 | 16 | 12 |
| | - | Gevo 10263 | 0.313 | 12.67 | 2.52 | 10 | 10 | 15 | 13 |
| | - | Gevo 10263 | 0.156 | 14.00 | 6.08 | 11 | 21 | 10 | 11 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | Gevo 10263 | 5.000 | 18.67 | 2.52 | 0.8 | 16 | 21 | 19 |
| | +(5%) | Gevo 10263 | 2.500 | 21.67 | 3.21 | 10 | 24 | 23 | 18 |
| | +(5%) | Gevo 10263 | 1250 | 19.00 | 3.00 | 0.8 | 16 | 22 | 19 |
| | +(5%) | Gevo 10263 | 0.625 | 15.50 | 3.54 | 0.7 | 13 | NA | 18 |
| | +(5%) | Gevo 10263 | 0.313 | 17.33 | 2.52 | 0.8 | 20 | 17 | 15 |
| | +(5%) | Gevo 10263 | 0.156 | 20.00 | 0.00 | 0.9 | 20 | 20 | NA |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | Gevo 10263 | 5.000 | 24.33 | 5.51 | 13 | 30 | 19 | 24 |
| | +(10%) | Gevo 10263 | 2.500 | 19.33 | 1.15 | 11 | 18 | 20 | 20 |
| | +(10%) | Gevo 10263 | 1250 | 23.33 | 153 | 13 | 25 | 22 | 23 |
| | +(10%) | Gevo 10263 | 0.625 | 17.33 | 2.52 | 0.9 | 17 | 15 | 20 |
| | +(10%) | Gevo 10263 | 0.313 | 19.67 | 2.52 | 11 | 22 | 17 | 20 |
| | +(10%) | Gevo 10263 | 0.156 | 20.33 | 6.11 | 11 | 15 | 27 | 19 |
| Positive control without metabolic activation: 11/1/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 929.00 | 126.01 | 715 | 1056 | 927 | 804 |
| | - | Untreated | | 17.33 | 4.62 | 13 | 12 | 20 | 20 |
| | - | Solvent | | 13.00 | 173 | | 11 | 14 | 14 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 52.67 | 2.52 | 2.3 | 55 | 50 | 53 |
| | +(5%) | Untreated | | 17.67 | 2.52 | 0.8 | 20 | 18 | 15 |
| | +(5%) | Solvent | | 22.67 | 3.21 | | 19 | 24 | 25 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 33.67 | 2.31 | 18 | 35 | 31 | 35 |
| | +(10%) | Untreated | | 26.67 | 5.03 | 15 | 32 | 22 | 26 |
| | +(10%) | Solvent | | 18.33 | 2.08 | | 16 | 20 | 19 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 45: Individual and mean plate counts for *E. coli* WP2 exposed to Gevo 10262 with JP8 additives (POSF 10263)

| Test compound without metabolic activation: 12/11/2013 | | | | | | | | | |
|---|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | Gevo 10263 | 5.000 | 46.67 | 2.08 | 11 | 49 | 46 | 45 |
| | - | Gevo 10263 | 2.500 | 44.33 | 10.97 | 10 | 53 | 32 | 48 |
| | - | Gevo 10263 | 1250 | 37.33 | 7.57 | 0.9 | 46 | 32 | 34 |
| | - | Gevo 10263 | 0.625 | 37.00 | 2.65 | 0.9 | 35 | 36 | 40 |
| | - | Gevo 10263 | 0.313 | 34.00 | 3.46 | 0.8 | 32 | 32 | 38 |
| | - | Gevo 10263 | 0.156 | 37.67 | 3.06 | 0.9 | 37 | 41 | 35 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | Gevo 10263 | 5.000 | 47.67 | 2.08 | 11 | 46 | 47 | 50 |
| | +(5%) | Gevo 10263 | 2.500 | 40.67 | 2.08 | 10 | 39 | 40 | 43 |
| | +(5%) | Gevo 10263 | 1250 | 47.00 | 2.65 | 11 | 44 | 48 | 49 |
| | +(5%) | Gevo 10263 | 0.625 | 49.00 | 7.81 | 12 | 44 | 58 | 45 |
| | +(5%) | Gevo 10263 | 0.313 | 50.00 | 14.73 | 12 | 34 | 53 | 63 |
| | +(5%) | Gevo 10263 | 0.156 | 42.00 | 1.73 | 10 | 43 | 43 | 40 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | Gevo 10263 | 5.000 | 51.33 | 9.71 | 13 | 49 | 43 | 62 |
| | +(10%) | Gevo 10263 | 2.500 | 46.67 | 6.66 | 12 | 50 | 51 | 39 |
| | +(10%) | Gevo 10263 | 1250 | 57.00 | 6.24 | 14 | 64 | 52 | 55 |
| | +(10%) | Gevo 10263 | 0.625 | 53.00 | 7.21 | 13 | 51 | 61 | 47 |
| | +(10%) | Gevo 10263 | 0.313 | 51.00 | 3.61 | 13 | 48 | 50 | 55 |
| | +(10%) | Gevo 10263 | 0.156 | 47.67 | 3.51 | 12 | 51 | 44 | 48 |
| Positive control without metabolic activation: 12/11/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | - | 4NQO | 2.5 | 1025.33 | 123.70 | 24.0 | 960 | 1168 | 948 |
| | - | Untreated | | 4133 | 4.73 | 10 | 43 | 45 | 36 |
| | - | Solvent | | 42.67 | 4.04 | | 45 | 45 | 38 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(5%) | 2-Anthramine | 20 | 552.67 | 109.57 | 13.3 | 574 | 650 | 434 |
| | +(5%) | Untreated | | 52.33 | 9.71 | 13 | 44 | 50 | 63 |
| | +(5%) | Solvent | | 41.67 | 4.16 | | 43 | 37 | 45 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| WP2 | +(10%) | 2-Anthramine | 20 | 533.33 | 96.77 | 13.6 | 608 | 424 | 568 |
| | +(10%) | Untreated | | 53.33 | 8.39 | 14 | 49 | 48 | 63 |
| | +(10%) | Solvent | | 39.33 | 4.04 | | 44 | 37 | 37 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 46: Individual and mean plate counts for *Salmonella* TA-98 exposed to Swedish Biofuel 7633 with JP8 additives (POSF 8452)

| Test compound without metabolic activation: 11/8/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | SB | 5.000 | 34.33 | 10.07 | 12 | 45 | 33 | 25 |
| | - | SB | 2.500 | 38.00 | 8.54 | 13 | 47 | 30 | 37 |
| | - | SB | 1250 | 25.67 | 4.51 | 0.9 | 26 | 21 | 30 |
| | - | SB | 0.625 | 30.33 | 3.79 | 10 | 32 | 33 | 26 |
| | - | SB | 0.313 | 28.67 | 1.53 | 10 | 29 | 27 | 30 |
| | - | SB | 0.156 | 27.33 | 4.04 | 0.9 | 25 | 32 | 25 |
| Test compound with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | SB | 5.000 | 53.33 | 6.66 | 12 | 50 | 61 | 49 |
| | +(5%) | SB | 2.500 | 45.00 | 4.58 | 10 | 41 | 50 | 44 |
| | +(5%) | SB | 1250 | 41.33 | 2.31 | 0.9 | 40 | 40 | 44 |
| | +(5%) | SB | 0.625 | 47.00 | 5.29 | 11 | 53 | 43 | 45 |
| | +(5%) | SB | 0.313 | 44.00 | 13.00 | 10 | 59 | 37 | 36 |
| | +(5%) | SB | 0.156 | 54.00 | 9.90 | 12 | 47 | 61 | NA |
| Test compound with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | SB | 5.000 | 47.00 | 12.17 | 12 | 55 | 53 | 33 |
| | +(10%) | SB | 2.500 | 40.33 | 11.93 | 10 | 27 | 50 | 44 |
| | +(10%) | SB | 1250 | 42.67 | 9.02 | 11 | 52 | 42 | 34 |
| | +(10%) | SB | 0.625 | 36.50 | 6.36 | 0.9 | 41 | 32 | NA |
| | +(10%) | SB | 0.313 | 37.67 | 8.50 | 0.9 | 38 | 46 | 29 |
| | +(10%) | SB | 0.156 | 34.67 | 3.79 | 0.9 | 33 | 32 | 39 |
| Positive control without metabolic activation: 11/8/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | - | 2-Nitrofluorene | 3 | 258.00 | 12.53 | 8.7 | 259 | 270 | 245 |
| | - | Untreated | | 30.33 | 5.69 | 10 | 24 | 35 | 32 |
| | - | Solvent | | 29.67 | 3.51 | | 33 | 26 | 30 |
| Positive control with metabolic activation: 11/15/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(5%) | 2-Anthramine | 0.5 | 206.00 | 173 | 4.6 | 207 | 207 | 204 |
| | +(5%) | Untreated | | 53.67 | 9.71 | 12 | 43 | 56 | 62 |
| | +(5%) | Solvent | | 44.33 | 8.96 | | 50 | 34 | 49 |
| Positive control with metabolic activation: 11/8/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-98 | +(10%) | 2-Anthramine | 0.5 | 130.33 | 0.58 | 3.2 | 130 | 130 | 131 |
| | +(10%) | Untreated | | 47.67 | 7.57 | 12 | 39 | 51 | 53 |
| | +(10%) | Solvent | | 40.33 | 8.96 | | 30 | 45 | 46 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 47: Individual and mean plate counts for *Salmonella* TA-100 exposed to Swedish Biofuel 7633 with JP8 additives (POSF 8452)

| Test compound without metabolic activation: 10/15/2013 | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|------|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | - | SB | 5.000 | 105.67 | 3.51 | 0.9 | 109 | 102 |
| | - | SB | 2.500 | 101.67 | 7.23 | 0.8 | 98 | 110 |
| | - | SB | 1250 | 127.00 | 22.27 | 1.0 | 147 | 103 |
| | - | SB | 0.625 | 115.00 | 14.11 | 0.9 | 117 | 128 |
| | - | SB | 0.313 | 114.00 | 5.00 | 0.9 | 119 | 114 |
| | - | SB | 0.156 | 126.33 | 20.13 | 1.0 | 145 | 105 |
| Test compound with metabolic activation: 11/19/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(5%) | SB | 5.000 | 110.00 | 3.00 | 0.8 | 110 | 113 |
| | +(5%) | SB | 2.500 | 117.67 | 4.93 | 0.9 | 112 | 121 |
| | +(5%) | SB | 1250 | 116.00 | 12.12 | 0.9 | 103 | 127 |
| | +(5%) | SB | 0.625 | 122.67 | 4.04 | 0.9 | 122 | 127 |
| | +(5%) | SB | 0.313 | 113.00 | 8.49 | 0.9 | 119 | NA |
| | +(5%) | SB | 0.156 | 116.50 | 7.78 | 0.9 | 111 | 122 |
| Test compound with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(10%) | SB | 5.000 | 112.67 | 10.97 | 0.9 | 119 | 119 |
| | +(10%) | SB | 2.500 | 108.67 | 9.81 | 0.8 | 103 | 120 |
| | +(10%) | SB | 1250 | 115.33 | 7.57 | 0.9 | 110 | 112 |
| | +(10%) | SB | 0.625 | 114.67 | 7.02 | 0.9 | 122 | 114 |
| | +(10%) | SB | 0.313 | 125.33 | 13.32 | 1.0 | 114 | 140 |
| | +(10%) | SB | 0.156 | 124.33 | 3.21 | 1.0 | 123 | 128 |
| Positive control without metabolic activation: 10/15/2013 | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | - | Sodium Azide | 3 | 1433.00 | 56.31 | 118 | 1402 | 1498 |
| | - | Untreated | | 12133 | 9.07 | 10 | 125 | 128 |
| | - | Solvent | | 12167 | 8.96 | | 132 | 116 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(5%) | 2-Anthramine | 0.5 | 579.67 | 17.47 | 4.4 | 599 | 575 |
| | +(5%) | Untreated | | 125.33 | 3.51 | 10 | 129 | 122 |
| | +(5%) | Solvent | | 13167 | 2.08 | | 131 | 134 |
| Positive control with metabolic activation: 10/15/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| TA-100 | +(10%) | 2-Anthramine | 0.5 | 33150 | 0.71 | 2.6 | 332 | NA |
| | +(10%) | Untreated | | 137.67 | 7.77 | 1.1 | 144 | 129 |
| | +(10%) | Solvent | | 130.00 | 13.11 | | 132 | 116 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.

Table 48: Individual and mean plate counts for *Salmonella* TA-1535 exposed to Swedish Biofuel 7633 with JP8 additives (POSF

8452)

| Test compound without metabolic activation: 10/24/2013 | | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | SB | 5.000 | 12.33 | 1.15 | 10 | 13 | 13 | 11 |
| | - | SB | 2.500 | 15.67 | 2.52 | 13 | 16 | 13 | 18 |
| | - | SB | 1250 | 13.67 | 4.04 | 11 | 10 | 18 | 13 |
| | - | SB | 0.625 | 14.33 | 1.53 | 12 | 13 | 16 | 14 |
| | - | SB | 0.313 | 12.67 | 0.58 | 11 | 12 | 13 | 13 |
| | - | SB | 0.156 | 13.00 | 1.00 | 11 | 14 | 13 | 12 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | SB | 5.000 | 10.00 | 1.73 | 0.7 | 11 | 11 | 8 |
| | +(5%) | SB | 2.500 | 15.00 | 1.73 | 1.0 | 16 | 13 | 16 |
| | +(5%) | SB | 1250 | 15.67 | 4.62 | 1.1 | 13 | 21 | 13 |
| | +(5%) | SB | 0.625 | 11.00 | 3.61 | 0.8 | 14 | 12 | 7 |
| | +(5%) | SB | 0.313 | 13.00 | 2.65 | 0.9 | 15 | 14 | 10 |
| | +(5%) | SB | 0.156 | 17.67 | 5.13 | 1.2 | 19 | 12 | 22 |
| Test compound with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | SB | 5.000 | 12.33 | 3.79 | 0.8 | 8 | 15 | 14 |
| | +(10%) | SB | 2.500 | 14.00 | 4.58 | 0.9 | 18 | 9 | 15 |
| | +(10%) | SB | 1250 | 15.33 | 2.08 | 1.0 | 16 | 13 | 17 |
| | +(10%) | SB | 0.625 | 14.00 | 3.46 | 0.9 | 12 | 12 | 18 |
| | +(10%) | SB | 0.313 | 14.00 | 5.29 | 0.9 | 12 | 20 | 10 |
| | +(10%) | SB | 0.156 | 13.00 | 9.85 | 0.8 | 24 | 10 | 5 |
| Positive control without metabolic activation: 10/24/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | - | Sodium Azide | 3 | 445.33 | 25.03 | 37.1 | 444 | 421 | 471 |
| | - | Untreated | | 8.00 | 2.65 | 0.7 | 11 | 7 | 6 |
| | - | Solvent | | 12.00 | 2.65 | | 15 | 10 | 11 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(5%) | 2-Anthramine | 0.5 | 30.67 | 5.13 | 2.1 | 35 | 32 | 25 |
| | +(5%) | Untreated | | 12.00 | 3.00 | 0.8 | 12 | 15 | 9 |
| | +(5%) | Solvent | | 14.33 | 5.13 | | 10 | 13 | 20 |
| Positive control with metabolic activation: 10/24/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1535 | +(10%) | 2-Anthramine | 0.5 | 31.67 | 4.04 | 2.1 | 28 | 36 | 31 |
| | +(10%) | Untreated | | 17.00 | 5.29 | 1.1 | 15 | 13 | 23 |
| | +(10%) | Solvent | | 15.33 | 2.52 | | 18 | 13 | 15 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 49: Individual and mean plate counts for *Salmonella* TA-1537 exposed to Swedish Biofuel 7633 with JP8 additives (POSF

8452)

| Test compound without metabolic activation: 11/1/2013 | | | | | | | | | |
|--|----------|-----------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | SB | 5.000 | 20.33 | 5.51 | 16 | 14 | 24 | 23 |
| | - | SB | 2.500 | 16.33 | 2.52 | 13 | 19 | 16 | 14 |
| | - | SB | 1250 | 14.33 | 3.79 | 11 | 16 | 17 | 10 |
| | - | SB | 0.625 | 11.00 | 4.36 | 0.8 | 13 | 6 | 14 |
| | - | SB | 0.313 | 12.33 | 2.31 | 0.9 | 15 | 11 | 11 |
| | - | SB | 0.156 | 13.00 | 1.00 | 1.0 | 13 | 14 | 12 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | SB | 5.000 | 15.67 | 2.89 | 0.7 | 14 | 19 | 14 |
| | +(5%) | SB | 2.500 | 20.00 | 4.00 | 0.9 | 20 | 24 | 16 |
| | +(5%) | SB | 1250 | 20.67 | 6.51 | 0.9 | 27 | 21 | 14 |
| | +(5%) | SB | 0.625 | 16.00 | 4.36 | 0.7 | 21 | 13 | 14 |
| | +(5%) | SB | 0.313 | 20.67 | 3.21 | 0.9 | 23 | 22 | 17 |
| | +(5%) | SB | 0.156 | 18.67 | 6.11 | 0.8 | 20 | 24 | 12 |
| Test compound with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | SB | 5.000 | 17.67 | 6.35 | 1.0 | 14 | 14 | 25 |
| | +(10%) | SB | 2.500 | 14.00 | 4.00 | 0.8 | 18 | 10 | 14 |
| | +(10%) | SB | 1250 | 17.33 | 4.16 | 0.9 | 22 | 14 | 16 |
| | +(10%) | SB | 0.625 | 19.67 | 3.79 | 1.1 | 24 | 17 | 18 |
| | +(10%) | SB | 0.313 | 14.00 | 1.00 | 0.8 | 15 | 14 | 13 |
| | +(10%) | SB | 0.156 | 18.67 | 3.21 | 1.0 | 20 | 15 | 21 |
| Positive control without metabolic activation: 11/1/2013 | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | - | 9-Aminoacridine | 100 | 929.00 | 126.01 | 715 | 1056 | 927 | 804 |
| | - | Untreated | | 17.33 | 4.62 | 13 | 12 | 20 | 20 |
| | - | Solvent | | 13.00 | 1.73 | | 11 | 14 | 14 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 5% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(5%) | 2-Anthramine | 3 | 52.67 | 2.52 | 2.3 | 55 | 50 | 53 |
| | +(5%) | Untreated | | 17.67 | 2.52 | 0.8 | 20 | 18 | 15 |
| | +(5%) | Solvent | | 22.67 | 3.21 | | 19 | 24 | 25 |
| Positive control with metabolic activation: 11/1/2013 Percent S9: 10% | | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | | |
| TA-1537 | +(10%) | 2-Anthramine | 3 | 33.67 | 2.31 | 18 | 35 | 31 | 35 |
| | +(10%) | Untreated | | 26.67 | 5.03 | 15 | 32 | 22 | 26 |
| | +(10%) | Solvent | | 18.33 | 2.08 | | 16 | 20 | 19 |
| "NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses. | | | | | | | | | |
| Bold indicates significant difference from solvent control at $p < 0.05$. | | | | | | | | | |

Table 50: Individual and mean plate counts for *E. coli* WP2 exposed to Swedish Biofuel 7633 with JP8 additives (POSF 8452)

| Test compound without metabolic activation: 12/11/2013 | | | | | | | | |
|--|----------|--------------|---------------------|------------------|--------------------|-------------------------|-------------------------|-----|
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | - | SB | 5.000 | 32.67 | 5.51 | 0.8 | 27 | 38 |
| | - | SB | 2.500 | 25.67 | 3.79 | 0.6 | 30 | 24 |
| | - | SB | 1250 | 23.33 | 153 | 0.5 | 22 | 25 |
| | - | SB | 0.625 | 28.00 | 13.53 | 0.7 | 15 | 27 |
| | - | SB | 0.313 | 38.00 | 6.08 | 0.9 | 42 | 41 |
| | - | SB | 0.156 | 33.33 | 7.37 | 0.8 | 39 | 36 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | +(5%) | SB | 5.000 | 40.67 | 6.81 | 1.0 | 43 | 33 |
| | +(5%) | SB | 2.500 | 24.33 | 6.11 | 0.6 | 31 | 19 |
| | +(5%) | SB | 1250 | 43.33 | 10.41 | 1.0 | 55 | 35 |
| | +(5%) | SB | 0.625 | 36.33 | 7.23 | 0.9 | 28 | 40 |
| | +(5%) | SB | 0.313 | 44.33 | 153 | 1.1 | 43 | 46 |
| | +(5%) | SB | 0.156 | 49.67 | 13.43 | 1.2 | 44 | 40 |
| Test compound with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Test Fuel | Dose per plate (uL) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | +(10%) | SB | 5.000 | 40.67 | 3.79 | 1.0 | 45 | 39 |
| | +(10%) | SB | 2.500 | 32.00 | 10.58 | 0.8 | 40 | 36 |
| | +(10%) | SB | 1250 | 35.33 | 6.66 | 0.9 | 43 | 31 |
| | +(10%) | SB | 0.625 | 41.67 | 15.01 | 1.1 | 33 | 59 |
| | +(10%) | SB | 0.313 | 41.67 | 5.77 | 1.1 | 35 | 45 |
| | +(10%) | SB | 0.156 | 35.67 | 9.61 | 0.9 | 27 | 34 |
| Positive control without metabolic activation: 12/11/2013 | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | - | 4NQO | 2.5 | 1025.33 | 123.70 | 24.0 | 960 | 168 |
| | - | Untreated | | 41.33 | 4.73 | 1.0 | 43 | 45 |
| | - | Solvent | | 42.67 | 4.04 | | 45 | 45 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 5% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | +(5%) | 2-Anthramine | 20 | 552.67 | 109.57 | 13.3 | 574 | 650 |
| | +(5%) | Untreated | | 52.33 | 9.71 | 1.3 | 44 | 50 |
| | +(5%) | Solvent | | 41.67 | 4.16 | | 43 | 37 |
| Positive control with metabolic activation: 12/11/2013 Percent S9: 10% | | | | | | | | |
| Tester Strain | S9 (-/+) | Compound | Dose per plate (ug) | Mean Plate Count | Standard Deviation | Ratio Treated / Solvent | Individual Plate Counts | |
| WP2 | +(10%) | 2-Anthramine | 20 | 533.33 | 96.77 | 13.6 | 608 | 424 |
| | +(10%) | Untreated | | 53.33 | 8.39 | 1.4 | 49 | 48 |
| | +(10%) | Solvent | | 39.33 | 4.04 | | 44 | 37 |

"NA" indicates value was not accurate due to water condensation, was not included in mean or statistical analyses.
Bold indicates significant difference from solvent control at $p < 0.05$.